

JOURNAL *of* FARM ECONOMICS

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FEBRUARY, 1940

Number 1

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Changes in the General Economy Needed in the Interest of Agriculture.....	A. H. Hansen
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will be published soon by the National Resources Committee as a part of a longer article.

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No. 1

PLACE OF FARMERS, ECONOMISTS AND ADMINISTRATORS IN DEVELOPING AGRICULTURAL POLICY

CHESTER C. DAVIS

Member, Board of Governors
Federal Reserve System

This field has been plowed and harrowed and planted and cropped so often that no harvest of mine can hope to equal earlier yields even though I were to apply liberal quantities of fertilizer. It is a broad field, and I shall have to be on guard against the temptation to wander too long in reminiscences of men we have all known, and the part they have played in the stirring events of the past two decades of unfolding agricultural policy.

Please bear with me while I survey the field in a few preliminary observations. Each man must tell of the world as he sees it from his own doorstep. Obviously what he describes does not coincide exactly with what another sees. It is not wilful misrepresentation, therefore, if what I have seen does not agree with what each of you has seen.

Agricultural policy is not summed up in one law or set of laws that directly affect agricultural production and marketing. It is expressed in a complex system of laws, administrative acts and attitudes that cover not farming alone, but other and wider ranges of international trade, taxation, monetary and credit policy, as well as special laws and policies with respect to non-agricultural industry and labor.

It is possible to attempt a general classification of the respective parts the farmer, the economist, and the administrator play in shaping legislation that enters into agricultural policy. One important person needs to be added to the title list to round it out. That, of course, is the legislator.

The farmer's reaction to the pressure of economic conditions is

the source and inspiration of such interest and action as has been developed in this field. He has developed important national and state farm organizations that represent him in councils away from home.

Individuals, who are frequently professional economists, have their attention drawn to special problems and needs by the spotlighting of farmer interest. They suggest lines of action which are developed and matured in the give and take of discussion with farm leaders, administrative officials and legislators.

Administrators are forced to apply the test of workability to all programs or plans, and to strive for their amendment and improvement once they are under way.

If a program requires legislative sanction, the legislators say what shall and shall not be done. They are generally responsive to expressions of farmer opinion if convinced they are representative and genuine.

In other words, farmer interest and concern build up pressure like the mountainous weight of a pent-up flood; individuals, frequently economists, trace out in shallow ditches the new lines along which the flow will move; while the administrator's chief concern is to keep the water moving in the channels once the flow starts, and to enlarge and straighten the channels themselves. The legislator must sanction the details and their subsequent change and improvement.

These categories are not mutually exclusive. A farmer or a legislator, as well as an economist or a business executive may be the original idea man; the economist or the farmer may become the administrator. But these elements are generally present in the genesis and the continuous evolution of any phase of national agricultural policy. I am not able to say of our own policy that in its evolution the part played by the economist has been of greater or lesser importance than that of the farmer, the administrator, or the legislator, because all have been essential.

When I refer to the work the agricultural economists have done I am talking about individuals, and not a group or class. They have not thought or acted as a class. The trail-blazing economists who have made their marks on the agricultural policies of this generation broke with the general tradition of their profession to do it.

On the whole, the present-day farm economist has become much more a man of action, and much less the ivory-tower critic than his

predecessor was. The change has not come about in smooth and regular stages. Most of it came in two definite spurts. Henry C. Wallace brought on the first when he asked the professional men who had been studying farm problems to pause a moment and show him what could be done about them. The second spurt came with the New Deal when nearly every farm economist of standing in the country was given a chance to advise and help shape farm programs, or to help administer them in AAA, FCA, FSA, FSCC, CCC, and the rest of the alphabetical permutations.

Most of the farm economists sat through the yeasty decade from 1921 on like Buddhas contemplating their respective navels. For years after the post-war crisis had shaken the American farmer's world, the great land grant colleges and their economic staffs remained stodgily unconcerned. The exceptions, however, were important and brilliant, and they made history.

To paint the full panorama of the making of agricultural policy since the war, assigning to each actor his proper size and perspective, calls for a better artist than I can ever hope to become. To make even a respectable attempt in this short talk demands an ambition matching that of the fellow who conceived the re-enactment of creation as a side-show for tourists at the Natural Bridge. I am not that ambitious. At most I can point out some high lights of performance which may illuminate the subject I have undertaken to discuss. Since this is a meeting of economists, and since I cannot cover the whole field, I think it will be appropriate to speak mainly of certain individuals among you and trace their contributions to the present pattern of national agricultural policy.

First of all, I want to emphasize the importance of the man who shocked farm economists out of their self-complacency, and hung up a bold green light in the USDA for venturesome souls with a yen for crusading—Henry C. Wallace, the Secretary of Agriculture from March 4, 1921 to his death in 1924. And I cannot think of him and of those years without thinking also of the agricultural economist who stood at his side while the first important drive for post-war farm legislation was taking form—Dr. Henry C. Taylor, organizer and first chief of the BAE.

Those who knew the first Secretary Wallace recall clearly his baffled disappointment when he realized that, in a situation which he considered as desperately demanding remedy, the economists had no positive help to offer. He used to complain that something

was wrong either with the men or the system that had trained and produced them, if after a lifetime of study of agricultural problems, economists were unable to respond to a crisis except by giving reasons why action could not be taken. He did not ask for perfection, but for advice as to which was best of admittedly imperfect courses—constructive advice, and the courage to make a start. His views were published in dress-parade language in the *JOURNAL OF FARM ECONOMICS* in January, 1924:

“Confronted with national problems, agricultural, economic and political, of greater magnitude than ever before encountered, would that more economists might attune their ears to the Macedonian cry that comes up from the open country, give up for a time their detached seats of observation from which they view domestic and world activities with cold gray eyes and make records which may enable future economists to explain what happened, and why it happened, and take an active interest in those who struggle, with the definite purpose of helping them work out their problems, not alone for their benefit but for the benefit of the nation.”

It is of great interest to me that the roster of Presidents of the American Farm Economic Association contains the names of so many economists who have made important contributions to our agricultural policy. There are 29 names on that list. More than one-third of them are indelibly associated with some definite idea that has been incorporated in national policy. It may be interesting to mention a few of these men, and note briefly how they have influenced their times, some as first advocates, others as nurses and feeders of some idea, some plan for farm relief.

I have mentioned Dr. H. C. Taylor. He was the ninth president of this association. His influence on the direction of the farm relief drive from 1923 to 1928 was profound. I first came in contact with him when he took that famous trip through the Northwest in the early fall of 1923. Some have been so unkind as to say the purpose of that trip was to arouse interest in and support for the program of farm relief that was later embodied in the McNary-Haugen bills. If Dr. Taylor advised or advocated any particular program on that trip I never heard of it. But perhaps the art of putting an idea across by asking questions did not die out completely 2300 years ago.

To go back to the beginning of the list this Association's first president, W. J. Spillman, published in 1926 and 1927 a farm adjustment plan complete with farm allotments, processing taxes and benefit payments, though all of the terms were not to be coined

until 1933, when some who as younger men had discussed these ideas with Spillman took a hand in the formation of the Agricultural Adjustment Act.

Dr. Spillman's views influenced John D. Black who was later to become a president of this body. They appeared with modifications in the chapter on the Domestic Allotment plan in Dr. Black's book on Agricultural Reform in the United States, published in 1929.

M. L. Wilson, your president in 1925, continued the study of the Domestic Allotment plan as outlined by Spillman and Black, and was largely instrumental in enlisting farm and public interest and support. Later, as an administrator, he had the chance to develop the first commodity program in the AAA, embodying many of the principles of the plan.

The second president of this body, Dr. George F. Warren, powerfully influenced farm thought and public policy. He helped focus attention on price ratios, and on the field of monetary action and price levels. Men who sat at his feet later occupied high places in government. One who was also at one time your president, W. I. Myers, became an outstanding administrator as Governor of the FCA during the formative years during which the Production Credit Associations and the Banks for Cooperatives developed as important parts of farm credit machinery.

Merely to mention other names of men who have headed the American Farm Economic Association is to call to mind ways in which agricultural policy has been affected by their work. You think of Taylor, and Stine and Tolley and Wilson in connection with the Outlook reports, and the developing concept of balanced agricultural output; of Nourse and the early cooperatives, and the conditions of foreign trade in the '20s; of Gray and land utilization policies that are fundamental in so many government programs of today; of Tolley in connection with marketing agreements and state and regional pro rate plans; of Elliott and county and regional planning.

I think of these men as having directly influenced action. Others from your roster of presidents have contributed brilliantly in the field of knowledge and criticism and thus indirectly to policy itself.

The impossibility even to mention all the economists who deserve mention as having influenced importantly the development of agricultural policy in recent years should be apparent by now.

Perhaps it was unwise to single out the few who can be referred to within our time limits today, because names come crowding on me with every right to their place. Dr. Charles L. Stewart developed the export debenture plan of the twenties, which, though never enacted into law in its original form, has been given another dress in one of the amendments to the AAA.

The thread of influences and events that reach through from Stewart's first export debenture proposal to Section 32 of the amended AAA illustrates clearly the persistence of thought in the field of farm policy. Dr. Stewart's plan took several legislative forms. Basically it would have issued to exporters of specified farm products, debentures which were to be accepted at face value by the Treasury in payment of duties on imports. To the extent that debentures were issued and used, the total of customs revenues collected by the government would have diminished. Farm groups took up and provided public backing for the plan. One of the leaders in Congress who became interested was Marvin Jones. In 1933 he became Chairman of the House Committee on Agriculture. It was he who secured adoption of the provision which sets aside 30 per cent of the annual revenues from customs, and authorizes their use to pay bounties on exports, or losses incurred in diverting surplus farm products into new domestic uses or for relief distribution. It is the offspring of the export debenture plan. It finances the stamp plan.

The field for direct action by farm economists has been extended almost infinitely in recent years. The nation has been combed by old and new federal agencies looking for seasoned timber for administrators, and promising young men for assistants in executive work and program planning. They have brought farm economists into new action fields.

This could go on indefinitely but it has proceeded far enough for purposes of illustration. It is of utmost importance to realize that no one piece of legislation can express the whole agricultural policy; even within its scope, no legislation is complete and finished. It is constantly being amended, expanded, replaced. In other words, farmers, economists, legislators and administrators working together haven't solved the farm problem. They never will solve it. But they will forever be trying with measurable success to improve the economic status of men and women on the farms. Theories discussed by a few today may be put to the test tomorrow. Experience

gained yesterday is the foundation of the program of today. The conservation of ideas is truly remarkable. Most of the positive thoughts that have appeared in the millions of pages and years of words devoted to discussion of farm problems have influenced in one way or another the present pattern of agricultural policy.

The continuous change that is taking place in the pattern is the result of the reaction of farmers to present programs, the response of members of Congress to what they believe the farmer reaction in their respective states or districts to be, and the experience of the administrators. It is in this stage that the influence of the administrator reaches its greatest importance. Again I turn to personal illustration. A man like J. B. Hutson, who combines economic training and administrative experience with an unusual capacity to work out action programs to meet problems as they arise, can not fail to exert considerable influence on the direction of farm legislation. A man whose training and experience have been that of the present AAA Administrator, R. M. Evans, must, because of his training and experience, apply to every proposition the question: "How will it work out in the country?"

Right at this moment the farm leaders and officials who are concerned with the continued success of the farm programs have a tough problem on their hands. The aims of the program would not be wholly satisfied by achievement of parity of farm prices with other prices and costs. They include the building up of reserve stocks of farm products, considerably larger than normal carry-over, to meet the accidents of drouth and pest, or of sudden abnormal demand. Ordinarily, the existence of abnormally large stocks depresses prices to the farmer more than proportionately. Yet it is desirable for the general welfare that they be built up and maintained. Therefore, it is essential that means be found to relieve the farmer of the full shock of stored surpluses on his prices. This cannot be done unless a general conviction is established that after the reserves have reached certain proportions—after the ever-normal granary is filled—seeding and other uses of the productive plant will be adjusted accordingly. If the program is to succeed, the public has to know that we will not continue to pile surplus on surplus until a disastrous liquidation from stored supplies becomes inevitable.

The necessary adjustment in the productive plant can be assured only if farmers who cooperate in the general program have an

economic advantage over those who do not. This advantage can be given if adequate appropriations are made by Congress, or if some device is offered to compensate the cooperating farmer.

The conferences that are now going on over the so-called certificate plan illustrate very well the preliminary stages of the legislative process. Incidentally, they tend to illustrate also what I believe is an important weakness in the mechanism through which democracy functions in the United States.

The USDA is trying to convince other departments which are primarily concerned with questions of taxes and revenues that the certificate plan should be adopted as partial substitute for the unbudgeted appropriations that were made last year but which it is feared may not be regularly forthcoming. Ultimately, the proponents of the plan hope to line up the President of the United States on their side. The legislative branch of the government does not participate to any important extent in the discussions at this stage.

Even if all the interested executive departments, including the President, agree on a program, it still cannot be considered the Government's plan. It cannot even be properly called the Administration's plan; because leaders of the majority of both Houses of Congress who are, after all, important cogs in the government, or in the administration, have not participated in the early stages that are shaping legislative forms which sooner or later will reach Congress.

This is not anybody's fault. The trouble is that our own peculiar form of democratic government does not draw the executive and legislative leaders together in a common responsibility in the enactment and in the administration of laws. I think that, on the contrary, the operation of our particular machinery too often tends to drive a wedge between the executive and legislative branches of government.

If legislative leaders had a continuing share and responsibility in the administration of laws they enact; if administrators had the duty and opportunity of standing on the floor of Congress to explain and defend their courses; and if important legislation could be advanced only after the responsible legislative and executive leaders of the government had agreed upon it, then the process of making and carrying out laws, and amending and perfecting them as we go along would, in my opinion, be vastly more orderly than it can be now. A long-drawn out dissension between executive and

legislative branches on important questions of government policy would be impossible.

Few can doubt that the future, like the present, will be crowded with issues that impose heavy responsibilities on the leaders of democracies. Problems will be constantly changing but they will probably not grow less. It is worthwhile to consider not whether the central government needs more powers, but whether its forms are the best that can be devised to meet those problems by truly democratic processes as they arise.

By this time I have come to recognize that the broad subject Dr. Elliott assigned me so that I could roam at will has turned out to be too broad. It is impossible to get over it even inadequately without straining your patience beyond the breaking point.

In conclusion I want to point to one truth that study of agricultural history of the past twenty years reveals. An unbroken thread has run through all the efforts of government to aid agriculture in our complex modern economy. Into it are woven not only what past administrations have done, but also the lost causes for which devoted men have struggled even though their efforts at the time brought them only bitter disappointment. What has been true in the past will probably be true in the future. If this only were generally recognized, then it might be possible for all interested elements to approach consideration of changes in agricultural policy with good humor and tolerance, above the level of bitterness engendered by partisan or class interest.

PROBLEM OF POVERTY IN AGRICULTURE

M. L. WILSON

United States Department of Agriculture

I

There are two predominant complexes of problems in American agriculture. One has to do with commercial, scientific agriculture. It relates to income, prices, and balance between commercial agriculture and industry in an exchange national economy. The second complex of problems is related to that part of the agricultural population which has not advanced very far in the national commercial economy. Poverty is not a good symbol for this wide group of people, because those in poverty can range from the poor who are practically destitute to those whose income, economic situation and pattern of living do not measure up to a certain arbitrary set of standards. If your interest is primarily in commercial farming you designate the first complex of problems as Number One in agriculture. If your interest is in the low-income group, you designate their troubles as the Number One problem, and the troubles of commercial farming as Number Two. But as we look into the future, and think in terms of the future of democracy, of the kind of rural life that our social philosophy sanctions and of the complexities and difficulties involved, low-income farming becomes our Number One agricultural problem.

Rural poverty in the United States is not solely the outgrowth of the post-war depression. The lot of the pioneer farmer on the frontier was poor in comparison with present-day living standards. Before the great depression most of you, however, like I myself, thought of rural poverty either in terms of the county poor farm or of the shiftless people who lived across the tracks. Those of us in agricultural colleges and experiment stations who sought to work out systems of farming which would yield satisfactory farm incomes did not bother much about people whose circumstances were such that they could not get into the good income group. Thus, in most cases, agricultural institutions of research and education were practically unaware of the extent and nature of poverty in rural areas.

This situation began to change when the great depression reached its lowest depths. At that time it was frequently said, probably with varying degrees of justification, that extension agents worked only with the more prosperous farmers and did not have the time, the

inclination, or the techniques to work with the low-income and poverty-stricken rural groups. But interest was beginning to show itself. Some research bulletins were devoted to problems of farm laborers and tenant croppers. A few studies of living standards had revealed the disadvantages of certain groups. There was some concern over the use of child labor in some agricultural enterprises. Students of types of farming and of farm income discovered some startling facts from the 1930 census. In some states social case workers had ventured out into the country. North Carolina and Minnesota offered courses in rural social work. However, research workers, agricultural leaders and the public generally were not prepared for the problems of rural poverty which emerged during the depression. When the Federal Emergency Relief Administration stepped into the picture in 1933 approximately a million farm families were destitute. Since then at least three and one-half million rural families, or more than one out of every four in the United States, have received public assistance. At least two million of these families were farm families. Even these almost incredible totals do not include all who were in actual need.

With urban and rural unemployment visible on all sides, there began to develop a new attitude towards rural relief. Early in the depression there was much discussion of moving unemployed city people to farms. The subsistence homesteads program under the National Recovery Act of 1933 was in part a result of this discussion. Related to rural relief were the problems of stranded, semi-rural communities, particularly in cut-over timber regions and abandoned coal-mining villages. A number of other programs also helped to focus attention on rural poverty. The submarginal land purchase program raised the question of where and how to resettle the families coming from submarginal land. There were also the various relief programs—Federal Emergency Relief, Civil Works, and Works Progress. In connection with the AAA program there were suggestions that tenants and share-croppers were being pushed off the land by landlords, and that these groups did not receive their fair share of parity and conservation payments. Moreover, technological change, particularly through the motorization of farm power with rubber-tired tractors, stirred up a great deal of discussion regarding the displacement of farm laborers and swelling of relief rolls. Organizations of farm laborers and tenants in some sections helped to call public attention to the plight of large seg-

ments of the farm population. Migrations from the drouth regions and poorer regions of the South to California and the Pacific Coast made the problem of migratory agricultural labor of great national interest. Youth groups emphasized the problems of rural youth. Discussions of tenancy by the President's Committee and by tenancy commissions in some states brought the problem before the public. A most important factor has been the work of the Farm Security Administration and the discussions in Congress and elsewhere regarding its program. The Farm Security Administration programs and its experiments lifted the problem of low income and poverty stricken people out of the realm of academic discussion and made discussion specific and concrete. Possibly the most dramatic evidence of nation-wide public interest in rural poverty is to be found in the record-breaking sales of Steinbeck's "The Grapes of Wrath" and the record run of "Tobacco Road." Who knows but that it will be said in the future that "The Grapes of Wrath" was the "Uncle Tom's Cabin" of the middle of the twentieth century. At any rate, out of widespread interest and much thinking there have emerged some new dynamic attitudes about low income rural families and rural poverty.

During the 77 years of the life of the USDA and of the Land Grant Colleges their objective has been to establish in this country prosperous family farms through application of the best practices research and science could give. It was assumed that the farmers accustomed to the family-farm system of agriculture would have sufficient incomes to attain a satisfactory mode of life. Our pattern of agricultural thought, our research, our teaching, and extension have been directed almost wholly towards this well-managed family farm. The attitudes that have emerged, first of all challenge the assumption that all the problems of our agricultural population can be solved by pursuing the family commercial farm approach. We now face a realistic question. The number of family farms is limited, and unless they are reduced in size, they cannot accommodate the so-called surplus of farm families on a scientific commercial family farming basis.

We must explore new alternatives. Self-sufficing and part-time farming may be valid types. We know little about subsistence farming and its relation to various sources of supplemental cash income, little about the possibilities of developing rural communities with a standard of living and cultural values consistent with

democracy under conditions when the farm surplus to be fed into the market is small. Farm economists and rural sociologists must face this set of problems with open minds, recognizing that we are dealing with types of agriculture that have not received the research, and benefits of educational activities commercial family farming has received.

I shall try, first, to draw some conclusion regarding the research work that has been carried on in this field; second, to discuss briefly the approach to the problem taken by different "schools" of social philosophy; and finally to place on the table and arrange side by side, so to speak, some of the most significant ideas for dealing with rural poverty in the fields of education, research, county planning, and action programs.

II

As the various government programs swung into action it was soon found that there was not enough information available for the development of sound programs.¹ Recent research in this field has been admirably summarized in two recent publications: "Disadvantaged Classes in American Agriculture," by Carl C. Taylor and associates; and "Seven Lean Years," by T. J. Woofter and Ellen Winston.

Among these findings certain things stand out: (1) rural poverty tends to be concentrated in areas where the natural resources are exhausted, although the paradox of "good land, poor people" also occurs; (2) science and its applications in a money economy are among the basic factors in the problem; (3) the farmer's equity in the land he operates has declined markedly in the last 50 years; (4) even in relatively prosperous times the less productive half of our farms produces only about a tenth of the marketed crops; (5)

¹ Here I want to pay tribute and give special credit to the vigorous and effective way in which the Federal Emergency Relief Administration, in cooperation with the Farm Security Administration, the Department of Agriculture, and the Land Grant Colleges and Experiment Stations, set out to develop needed facts and relevant information. Under the leadership of Dr. Dwight Sanderson, Dr. J. H. Kolb and Dr. T. J. Woofter in the Federal Emergency Relief Administration, and of Dr. Carl C. Taylor and associates in the Resettlement Administration and later in the Department of Agriculture and Dr. Paul S. Taylor of the University of California, there was set in motion a tremendously worthwhile effort to get the required facts. Not only did they do some of it themselves, they also stimulated the State Colleges. Thirty-two states carried on research projects under the WPA plan. This year at least 30 states are studying some phases of rural poverty. Without this stimulus some of them would not now be interested in these questions. Publications of great value have grown out of this activity.

families receiving public assistance were handicapped even before the depression; (6) there seems to be a direct relationship between needy farm family welfare and production for home consumption; (7) part-time farming tied into industrial employment often cannot carry the full burden of a family when employment fails; (8) increase in farm population is greater in the poorer than in the more prosperous areas; (9) only about half of the 400,000 young men reaching maturity on farms each year are needed to replace older workers who die or retire; and (10) in a number of areas where distress is widespread there are cultural islands—groups having a higher living standard than those in the surrounding area.

III

Concepts of low income and rural poverty are difficult to define. Neither is a very exact term, and being inexact each is likely to mean one thing to one person, and something else to another. At this stage, we need to attempt statements of different viewpoints, and much discussion. Dr. Maddox has made a good start in his paper.² It seems generally agreed that poverty is not so much a matter of innate capacities or of inferior heredity, but rather the result of the interaction of the people, their institutions, and their social environment. Changes in culture and social environment offer much greater hope than changes in heredity. In fact, so far as this problem is concerned, there is not much that can now be said regarding human heredity that meets the tests of scientific methods.

The early attempts to define poverty in terms of income only, or in terms of material levels of living, were not adequate—many families appeared to be securing considerable enjoyment out of life even though their cash incomes were low. The definition which regards poverty as inability to maintain standards sanctioned by the group is somewhat better in that it recognizes the importance of the culture of the group, and goes far beyond the cash income measuring stick.

A social philosophy which I shall later designate as scientific humanism, in considering poverty combines the emphasis on culturally sanctioned ethical standards and income with standards based upon the teachings of science about the needs of man. Philosophy and religion are recognized as the bases for certain

² See November, 1939, issue of this JOURNAL.

values or ends in life which are outside the realm of science. Man's biological needs of diet, shelter, health can be expressed in scientific terms which permit us to speak of adequacy with considerable confidence. How these biological standards fit into the culture of people and how people change from one set of cultural standards to another is a different question. The sciences of man as they develop and integrate tend to form a new pattern of ideas and tend towards a new culture. The social sciences, particularly cultural anthropology and psychology, are also contributing by making us conscious of the psychological and cultural needs of man; so that ultimately I hope we will be able to speak of these needs with as much assurance as we now speak about diets. When this time arrives we shall speak of recreation, security, and aesthetics with as much scientific precision about needs and standards as we now speak of vitamins. With such knowledge at hand, poverty would be defined as that condition which failed to permit the complete satisfaction of physical and psychological needs by means sanctioned by this culture.

It is rather difficult to generalize about poverty in the United States. It is one thing with negroes and poor whites in the cotton belt and something entirely different with the Mexicans and Spanish-Americans from Texas to California. Wholly different again is poverty in the Great Plains growing out of a succession of crop failures. The circumstances and problems of the migrant laborers on the Pacific Coast are entirely different from those of the people who live in the Southern Appalachian Highlands. Still different is the poverty in the cut-over regions and regions where the natural resources have been exhausted.

There are a great many poverty-stricken families now who were self-supporting prior to the depression. There are other families who were born in poverty and are still in poverty. Last spring I talked with a participant observer in a rehabilitation experiment in the southern States, who said that he came in contact with a great many poor people who were primarily sick people; they were sick physically because they had never had the proper diet and the right kind of biological environment. They were also sick mentally. They had little ambition, little skill and little culture, and they did not know how to do anything for themselves. They had to be told. They were also sick spiritually, and seemed to have little to live for as well as little to live with. Therefore we have these many degrees

in poverty, beginning with the sick and abnormal at one end of the scale and moving to those who are in their present status because of circumstance and misfortune rather than because of lack of character and personality development.

The low income and poverty-stricken people are not now a pressure group. Neither are they a vocal group in agriculture. What is going to be done both outside the Government and by the Government will be done as a result of public opinion and social responsibility. Therefore, if we accept the assumptions which I have just enumerated, a logical starting place for us in this discussion is with the attitudes and social philosophies which predominate in public opinion and in present day thinking.

Our attitudes towards poverty are as important as our definitions of poverty. Our attitudes largely determine how we interpret so-called facts and data and what we think should be done when they are interpreted. It is becoming more and more clearly recognized in the social sciences that attitudes, both of individuals and of the public, are of tremendous importance. However, attitudes are reflections of general ideas deep down in our minds about the nature of the cosmos, of man and his spiritual and moral attributes, and his relations in society. These general ideas either consciously or unconsciously fit together in each of us to make our social philosophy. Social philosophy is therefore the sub-soil out of which spring in part attitudes; and attitudes largely determine what we think, what we see, how we interpret and read meaning into what we see. It is therefore important to try to understand the prevailing social philosophies and the attitudes which result therefrom about rural poverty. When it comes to policy-making in a democracy, attitudes and social philosophies are as important as the so-called statistical facts.

IV

As I see it the different prevailing social philosophies with reference to the problems of rural poverty can be conveniently summed up in four contrasting social philosophies.

First, there is *individualist optimism*, which assumes that everybody can be successful if he will only try. This philosophy holds that it doesn't matter if one is born poor or is reared in a poverty-stricken environment. If he has the stuff in him he will succeed. It holds that relief and other measures of public assistance are

harmful, since they confirm the sluggards in their laziness. It stems from the frontier situation where, if success was not achieved in a given place through agricultural production and rising land values, there were always the alternatives of going West or of moving to the city. Financial success and advancement up the ladder toward farm ownership were comparatively rapid. The many individual and regional successes which occurred were so spectacular that it was easy to ignore the individuals and areas left behind. This thing that we have called progress for the last hundred years is going to keep going in the future just as it has gone in the past. Such an outlook has little patience with rehabilitation, government expenditures for relief, or with other efforts to help those in distress.

An extreme statement of this view is that "poor people are no good." A well-to-do farmer who holds this point of view remarked to me a few years ago: "We have a lot of people around here that are just trash. We always have had them; always will have them; human nature doesn't change." This attitude varies by regions. I know a farmer in the Great Plains who a decade ago exploded about "no good people," but who has gone through seven or eight crop failures. He now says it is possible for conditions to get so bad that the individual cannot successfully combat them, no matter how smart he is. There are many tens, and perhaps hundreds, of thousands of farm families, once owners or substantial operating tenants, who were overcome by the disorganizing forces of depression and pushed down into the depths of despair as by a great, magic, dark hand. Rehabilitation loans are now moving many of these people up the ladder, and I don't believe this view is quite as harsh or as pronounced as it was a few years ago. Nevertheless, if a study were made of attitudes by competent rural social psychologists I think we would be surprised by the large number of people whose attitudes grew out of this social philosophy.

A second social philosophy is that of agrarian self-sufficiency. "People are poor because they do not have the inclination, the skill, the initiative or the opportunity to produce for themselves. A self-sufficient rural economy has no poverty and produces security and satisfaction. It can make as much use of science as does the commercial farm economy. A commercial rural economy cannot avoid producing a poverty class." The solution of rural poverty, they say, is wide distribution of agricultural resources in the form of small, individual farm units and a simple, highly co-

operative economy based on production for use before exchange. Science can be applied to the small self-sufficient farms as well as to the large farm and will do as much in the future for this type as it has done for the commercial farm in the past. The agrarians, as they call themselves, have a dignified philosophy and a deep respect for human life. Very likely they are a growing group. If the near future is to be one of world wars, nationalism and whatnot, you will hear a great deal about this philosophy. Among the agrarians are some stimulating writers. The writings of Father Ligutti, the publications of the National Catholic Rural Life Conference, Herbert Agar's book "The Land of the Free" and Ralph Borsodi's books are worthy of study because they typify this point of view. These writers are convinced that only through wide diffusion of the ownership of small family farm units of land can we secure the kind of democracy of which the founding fathers dreamed. Further, they believe that only by a maximum degree of self-sufficiency can each farm family assure itself of security from the hazards of modern economic life, and thus of freedom. They do not turn their backs on science but say that we can apply it on the small farm as well as on the large farm. To use the cultural anthropologists' terms, they are talking about a culture much different from the culture of which our American farming is a part.

A third social philosophy can be called the Rational Organization of Agriculture and Industry. Those holding this philosophy would plan and organize both agriculture and industry in the most rational efficient manner possible. Some would do this through direct or indirect national economic planning for abundance. Others have faith that there is in the nature of things a rational economic order. If this rational economic order could prevail, they say it would organize industry and agriculture, and poverty would be replaced by abundance. This point of view would confine agricultural efforts to those areas and types of farming regions best suited to commercial agricultural production. The use of the most scientific, labor-saving, and efficient methods would necessitate rapidly moving the surplus agricultural population to the cities and to industry, where they would be absorbed in a rationalized industrial system. Efficiency, low-cost production of goods, expansion of industrial production and an era of abundance are their watchwords. The industrial expansion plan as proposed by Dr. Mordecai Ezekiel and Congressman Voorhis (H.R. 7504-76th

Congress) is intended "to control monopoly and to encourage and protect commerce among the States, in order to assure continuous economic prosperity and security, increase the national income, and promote adequate and ever-rising standards of living limited only by the productive capacity and natural resources of the Nation."

In contrast to the agrarians they view any large movement of populations from the city and industry to the farms as a backward step towards the Dark Ages. And the holding on the soil of more people than are needed for efficient scientific production is simply producing a peasant class without opportunity and inconsistent with science in the 20th century.

I believe I see slowly evolving another, a fourth, social philosophy, which is quite different from the three I have listed above. For want of a better term I call it Scientific Humanism, although I am not sure that that is the name which will eventually characterize this social philosophy. Civilization and our culture move along and change as the pattern of ideas changes. Science and technology are the two forces which are tremendously modifying our culture. They are producing a greater change in the way we live and in the way we think than the horse, for example, changed the life of the Sioux Indians when they quit stalking game on foot and took to hunting buffalo on horses. There is some evidence that we are having trouble with and are growing out of the highly competitive, unstable, insecure materialistic culture in which we now live. We seem to be evolving a culture which lays more emphasis on a scientific understanding of the innate nature of man and a greater appreciation of non-material values in man's culture which are based upon certain types of philosophic and religious ideas. This point of view grows to quite an extent out of the thinking of social philosophers who view culture as a whole in which the parts are all interrelated. In this scientific humanism, since it views the culture as a whole, there is less emphasis on efficiency as such and probably more emphasis upon security; perhaps less emphasis on certain types of material things and more on the cultural and spiritual aspects of life. As social philosophy and the sciences of man develop, and as we recognize how any group of people live within their culture, I think we see poverty and insecurity in a little different way than we see it in either of the three philosophies which I have outlined above.

People want the security that comes from doing useful things, the pleasures of making a secure home and of rearing a family and providing it with the necessities of life and natural recreations. This does not necessarily mean a desire for large income and excessive personal ambition—"keeping up with the Joneses"—but the assurance of reasonable comfort. Some material things are basic: housing that will keep out the weather; clothing that will keep people warm; proper food to keep them healthy; sanitary and medical facilities that will reduce disease. They want to be able to find congenial companions, to take part in the activities of a well integrated democratic community and to be able to express their religious aspirations and esthetic feelings, and they want educational and recreational and cultural facilities that meet their needs.

V

We are now in about the same place in the national discussion of low income farm people that we were in the pre-farm board days regarding farm income. When the situation was such that there was real interest in income several types of thinking developed. There were the McNary-Haugenites with the equalization fee plan, the cooperative marketing group with orderly marketing, the export debenture group, and those who wanted a new rational land policy. There is now this difference, however; we have the great experience of the FSA to build upon. I think the American people are getting ready to take one or two more steps in relation to low income and poor farm people.

If we assume the problem of the low income rural people is being recognized as of great national significance then we may ask "What are some of the leading ideas and proposals which are being thought about and discussed in the fields of education, of research, of county and State agricultural planning, and of action?" I was once a member of a seminar conducted by a professor who usually started the period by getting out of the class all of its ideas on a particular subject. That is what I propose to do in the remaining portion of this paper.

Proposals in Education

1. Policies in democracy should grow out of the soil of intelligent and informed public opinion. There are a great many who feel that the discussion of our agricultural problems is largely centered about what I have called the problems of commercial family farming, and

that there is need for a planned and rather systematic movement which would acquaint the general public and particularly the more influential and prosperous farmers about all phases of the low income poverty problem. Something is being done along this line. Much more should be done. There might well be state and national commissions, both governmental and private, set up to study and focus attention on the whole problem.

2. It is said by some, particularly by those who have been working with low income people, that new educational techniques need to be developed. Present extension and adult education techniques do not reach them. These techniques would have to do with character building, personality development and the teaching of particular skills. The farm and home budget of FSA is a technique in this direction.

3. Cooperative organization and cooperative self-help as a part of a conscious philosophy of life when associated with the right kind of adult education program has resulted in much progress among low income people in several places in the world. Something of great significance has been developed in this regard in the Scandinavian countries and in Nova Scotia. Beginnings have been made in a few places in this country by the FSA. But we have not taken seriously this type of educational approach either on the national level or the state level.

4. Unquestionably there are many rural and grade schools in the rural poverty sections that do a very poor job of common school education. If we seriously think of education as one of the ways of eliminating poverty and improving the condition of the low income people, then there must be some kind of reorganization which will make available to the poor districts and the poor communities a type of educational opportunity which is reasonably comparable to that of the best districts and the more prosperous sections. This type of education should not only train for the life in agriculture but should also teach skills and vocations which would benefit the individual if he should migrate from the community in which he was born and reared.

5. The experience of the FSA shows that special types of training could be given in the colleges which would better prepare teachers, Farm Security supervisors, and others who are engaged in the work of rural rehabilitation and the supervision of the farm tenancy loans. If we recognize this as agriculture's Number One or Number

Two problem and could have a clear vision as to the developments in the future, then the colleges of agriculture might do a good deal in special courses and special training for people who are to work in an educational-research, planning and administrative way with various phases of rural poverty.

Proposals in Research

Since research workers are likely to think of the studies which should be done in relation to a problem, I want to examine some of the proposals for research that have been made. There are such questions as, what proportion of families and persons in need are capable of self-support if given guidance and assistance, and what types of guidance and assistance are most effective? Furthermore, there is the question of how a secure combination of part-time farming and part-time industrial or outside employment can be worked out; and why, on the other hand, some of the part-time areas have been areas of intense need, and why has this been the case.

Proponents of a cooperative self-help economy are interested in the possibility of expanding programs for self help, and in the limits to which these activities can be pushed, as well as in the effect of such activities upon the total economy. They are also concerned with the question of the conditions under which a small cooperative self-help economy could exist as a permanent institution within the framework of our more competitive economy, and how members of the self-help economy can pass on to the regular economy.

Proponents of the argument that the way to solve problems of rural poverty is to raise the national income or the total agricultural income have a research problem in finding out how the benefits of this larger income can be spread to the groups which are now the lower income groups, and why there were so many rural people in poverty at a time when aggregate farm income was relatively high.

I have a very definite conviction that the most fruitful research into problems of rural poverty will go ahead without much regard for the traditional limits of present-day social scientific disciplines of economics and sociology. The approach cannot be primarily quantitative. The case study method within the framework of a *cultural approach* promises to yield rich returns, even though most of the case studies which we have now are descriptive rather than

analytical. Why do people live as they do? How did they come to lose the simple skills of everyday life which their ancestors took for granted? What are their aspirations and motivations? What are the circumstances under which they would be willing to make serious efforts to improve their own conditions? How can such self-sufficing self-help items as gardens, food preservation, pressure cookers, home repairs, better health, conservation, etc., be introduced into the folkways and again become habits of the low income people? What are the cultural patterns which have developed in problem areas and which lead people to accept what most of us would call substandard conditions? What are the institutional changes which are needed to bring about desired improvements, and how can they be achieved? These are some of the questions which might be answered through a combination of case study and a cultural approach.

In nearly every State there is under way at least one significant experiment to rehabilitate low-income farm families by public or private efforts. I wish you would keep an eye on these experiments in your own backyards, watch them grow, and make a careful study of their development. Some of you are skeptical of much that the government is doing. Why not study one or more of these projects? The experiments would benefit from careful analysis and I am sure you would drive much insight into the agricultural problems in your State. What is needed especially is the establishment of a number of participant observers in strategic locations who will record the course of these experiments faithfully and in a way to permit comparisons among them. That skepticism which leads to careful analysis is of most value both to research and to action programs.

Another new suggested research approach is through the Mead Bill (76th Congress, 1st Session, S. 2958), "to provide for establishing five regional agricultural research centers, for investigations and demonstrations in self-sufficing farming." The Mead Bill is based on two assumptions: First, that it is desirable for future plant and animal breeding purposes to maintain and preserve all varieties and types of plants and breeds of livestock. At present many are being discarded which may be of great value for breeding purposes in the future. Existing experiment stations for several reasons are not adapted to this purpose. Some new institutions are needed.

Second, investigation is needed in the specific purpose of applying science to the development of self-sufficing farming. I quote the following from the preamble to the Bill: "Whereas (1) approximately one million five hundred thousand farm families in the United States are engaged in self-sufficing farming, living on small farms on which they raise most of the meat, vegetables, dairy products, and other food they consume; (2) these non-commercial farms are about 22 percentum of the number of farms in the United States; (3) this type of agricultural living has not received adequate scientific investigation and study, because changing economic conditions and changing technology have directed most of the attention of the Department of Agriculture and of the land-grant colleges to the problems of commercial farming; and (4) it is sound national policy, in keeping with the fundamental principles of democracy, to protect opportunities for families to maintain homes on small tracts of land on which they can produce food for family consumption to supplement other income; and "Whereas families carrying on self-sufficing or part-time farming need some source of supplementary cash income, and the possibilities of supplying such income through home industries and rural small-scale industry have not been adequately explored." These regional laboratories would really become research centers in connection with all phases of self-sufficing farming.

County Planning

In those areas where rural poverty exists in the most acute forms, county planning committees usually arrive at a point in their work where they are confronted with imponderables. The most important of these is the question of what to do with or for "surplus farmers." Generally, it is found that the greater the poverty, the higher the birth rate. Crop acres available per farm family are few and their quality is poor. There are counties in which whole communities subsist on a per capita cash income of less than \$25 per year, much of which is provided by public assistance of one kind or another.

When planning committees in such communities undertake to plan for a higher material plane of living, it is logical and inevitable that they should construct in their own minds some minimum level which they would regard as reasonable. The tendency is to determine upon some particular type of farm organization which,

under normal conditions, might be expected to yield a reasonable income, and then to see whether the land resources available in the area would permit the size of farm required for such organization and at the same time take care of the existing population.

Almost invariably, they find that any program designed to facilitate the adoption of their recommendations would displace a substantial portion of the existing population. This may be due in part to the fact that the planning committees consist of too large a number of "commercial" farmers and too few "subsistence" farmers. Generally, however, these so-called "commercial" farmers are not large-scale operators. They are, for the most part, operators of family-size farms with very modest incomes.

They feel that if they are going to plan for a better rural life, they should plan for something that is substantially better than what now exists, and they have found no answer to the question of how to make such plans for all the existing farm population without depending upon non-agricultural activities, either public or private, to take care of their excess number.

It is when they reach this point that they turn to Washington and ask, What assumptions are we to make in our planning work? What is the national policy with respect to the expansion or contraction of the proportion of our population engaged in agriculture? National policy and national programs, which include industrial policy and programs, must be clarified and must state if the work of local planning committees is to be integrated therewith. If local planning committees must plan on the assumption that local populations are destined to increase rather than to decline, their proposals will be of one kind. But if they can assume that agriculture is not going to be permanently overmanned and that non-agricultural employment opportunities are destined to increase, their conclusions will be of a vastly different order. Of course, there are all degrees of variation between these two extreme assumptions. But local groups must have some idea as to what the basic assumption or outlook is, whether this is to be determined by the so-called free play of economic forces or by positive action of government.

Proposals in Action

The present proposals for action may be conveniently grouped under five major headings.

1. There is one set of proposals which would go ahead with what

FSA is now doing—helping the rural poor as best we can on the theory that for many people any improvement at all represents progress. It is a major part of the FSA program that it insists in every case on underwriting the subsistence of the family as a prerequisite to making a loan for agricultural production, even though the loan is not repaid as quickly as might otherwise be the case. The FSA is doing a splendid job with about 600,000 families. It has found a way of rendering a real service. At the same time it has found that many people who are not receiving aid are in need and how difficult it is to set up and carry through a program which will really minister to those people whose need is most acute.

Many people who believe in a live-at-home program are impressed with the need for additional cash income. To them it seems that in a national economy there would be room for a combination of part-time industrial employment with part-time farming. Many branches of farming can be carried on with as much efficiency on a small as on a large scale, and the labor load in them is concentrated into only part of the year. Nothing seems more rational than to combine seasonal industrial activity with this kind of part-time farming, a combination which worked well in some older cultural patterns. The introduction of part-time industrial opportunities into areas in which farmers are carrying on a self-sufficient type of agriculture would be a practical solution of many problems.

2. Since in some areas the outlook for the rapid development of part-time industrial opportunities is not bright there has recently been put forward with some vigor a proposal to utilize a rural conservation works program as a source of additional income for poor families living on subsistence farms. Such a proposal seeks to use the relief moneys which now go to the poorer areas in such a way as to contribute to the rehabilitation of the individuals and at the same time add to the resources base now available. There are places where as a result of work relief programs the soils are being improved, forests are being planted or improved, terraces are being built, floods are being controlled, land is being made available for the permanent use of the persons now in need.

3. Without minimizing the contributions of a program which would provide additional cash income for self-sufficient farmers, there is still another group which would go much farther.

They would develop what might be called a national cooperative self-help economy, which would be an economy within the larger

competitive economy of which we are a part. The Friends' Social Service Committee, The Self-help Group, and many others, as well as the Farm Security Administration, have experimented with this pattern in numerous places. The attempt to work out a self-help scheme for the unemployed in California represents a large-scale attempt along these lines. Some would go so far as to require that all persons receiving relief join a self-help cooperative as a prerequisite to Federal aid.

Cooperative effort in many lines—producing, buying and selling, providing health and medical services, providing recreational and educational facilities, and many other types of activity—is carried on. Low-income people all over the world have advanced and profited by self-help cooperatives. Why not give them government subsidies? It is assumed that people will advance out of this self-help relief economy into the regular industrial system as jobs are available. Since it rests on getting the people to help themselves, it would require a definite intensive educational program, which would at the same time make the people who take part in it better citizens of their community in the sense that they would democratically participate in its activities more fully and more effectively.

4. There is still another group who might be called national planners. They call for action along an entirely different front. They do not approve of the attempt to develop a cooperative economy within the framework of the larger competitive economy, nor do they grant the desirability or the feasibility of proposals which would break up commercial farm units in our better farming areas to make room for smaller self-sufficient units. They believe that we have the wits so to organize the national economy that all of the people would be absorbed in remunerative employment and all parts would produce at maximum efficiency. They would confine agricultural efforts to those areas best suited to commercial production, since the demand for farm products is relatively inelastic and the possible improvements in agricultural efficiency would make it even more difficult for the areas which are now submarginal to compete. They believe an expanded and well integrated industrial plant would absorb the present volume of unemployment as well as the population which would be released from agriculture by such a scheme. Their proposals most likely call for a powerful state which could be democratic and not necessarily authoritarian even though it would regulate many phases of economic life. Mr. Voor-

his' bill is one attempt to set up such a system. If such a solution were possible it would be desirable to have new developments in democratic ideas and processes. Technological efficiency alone is seldom or never all important. Technological efficiency is important but many applications of it have created immeasurable misery. I believe that for the present we must keep a much larger number of people on our farms than many agricultural economists would advise. There are values in rural life, even in a rural life without rich material returns, which in my estimation are superior to maximum commercial productiveness without these homely values. Nor is the movement from one type of employment and one cultural pattern to another as easy as the transfer of material goods from one place to another.

5. There are possibilities in the development of rural industrial communities for certain types of industry and in decentralized industry. I thoroughly approve of that kind of national economic planning which considers other values as well as economic values and calls for the decentralization of some of our industrial plant so that part-time farmers could get part-time industrial employment. I have great faith in a new type of rural industrial community which can be made to combine maximum technical industrial efficiency with a rural suburban type of life. This at best will be a slow development. The development of aerial warfare may change the place of cities in western civilization and the movement which I have mentioned may be speeded up by the adjustments to warfare rather than for humanistic reasons.

VI

I have written on the blackboard, so to speak, most of the ideas that I believe are being given consideration. How do these check with the four social philosophies which I have earlier described? I am going to close by giving a rough approximation of what I think a spokesman of each of these would pick out for his program.

Individual Optimist—You remember that this group does not feel any very deep-seated changes have taken place in our economy or that there are trends which are of a very serious character. They have faith that adequate farm income will pretty largely take care of the low-income people. More and more I believe they are coming to accept the rehabilitation loan phase of the Farm Security program. They want to keep the land use ladder free and open and

are reasonably strong for educational programs, especially those which will help rural youth find skilled jobs in cities. They are very conservative about public expenditure and have little if any concern for the conscious development of a self-sufficing farm life, at least for the present.

Agrarian—The agrarians will take the kind of cooperative education program which has been going on in Nova Scotia. They will support the Farm Security program for the present, leave people where they are, not do much about submarginal land but stimulate small holdings first in the cotton belt and in the South. They would not confiscate land but through purchase and subdivision they would gradually break up the cotton economy.

National Planner—The national planners that I have been describing would give jobs and industrial opportunity to all the low-income people through industrial expansion. Some would accept the Voorhis bill; others who would not have vague ideas which they cannot quite yet state in the form of a definite program.

Scientific Humanist—The scientific humanists would take all of the educational proposals. They would start with the FSA, as is, and begin building on it. I think many of them would favor experimenting with a national permanent conservation works program to give supplemental income to self-sufficing farmers. They would experiment with various forms of self-help organization and of course would support the Mead bill. They favor lots of education, lots of research, lots of experimentation and some new lines of action.

Let me repeat that there is sufficient public interest in the problem of agriculture's low income and poverty-stricken people to sustain an intensive national discussion which I hope will result in some new activities, new steps forward and which can be built upon our present programs and the present work of the FSA.

DISCUSSION BY J. I. FALCONER

Ohio State University

In his original paper Secretary Wilson divided the problems of American agriculture into two predominant sets, one those which were of concern to commercial farming, our regular pattern of farm organization in this country; the other related to about a third of our agricultural population which is not very deeply meshed in the commercial agricultural economy, or the low income group. In the paper as presented he called attention to the wide variations in conditions and situations as relates to the latter group.

I had intended to, and am going to, preface my remarks by calling your attention to a statement which I recall having been made by Dr. Richard T. Ely some 25 years ago in a seminar on Land Economics at the University of Wisconsin. The statement was this, "There is no greater injustice than the equal treatment of unequals." I am wondering whether we have not reached a stage in our economy where we must recognize the significance of this statement. Perhaps we have taken too literally and interpreted too broadly the statement that "all men are created free and equal." Acting on this general philosophy, we have tended to farm all our lands alike, we have tended to apply the same programs to all, we have tended to assume that all are motivated by the same philosophies, and that all would respond to the same approach.

I believe that if we are going to adequately deal with the problems under discussion at this session, we will have to recognize these various differences and adapt our programs to them.

That there are lands of various capabilities and various characteristics we readily recognize, but too often we have not adapted our farming or our programs, educational and otherwise, to these characteristics. We need a thorough appraisal of our lands and a formulation of programs as to their best uses. A few years ago it was popular to say that the occupants should be moved off the poor land. Now it is popular to say that the low income farmers should be rehabilitated in places. It would seem that we must all agree that there is land so poor and so poorly adapted to cultivation that it should not be farmed. If so, the question then is how poor or how poorly located should land be before it would be desirable to discourage its further cultivation. Or, stated the other way around, how poor can the land be or how poorly located and still justify its cultivation.

One of the merits of the present county land-use planning project which is abroad in the land is the appreciation which it brings to those taking part in it, of the wide variations of situations even within a county, of the need of a variety of programs rather than of one.

As there are variations in land, so are there variations in those who inhabit it. Even though I am not a sociologist, I would venture to say that of the people in a given poverty area not all could be best assisted to improve their situation by applying the same remedy, or by applying the remedy in the same manner.

Before we can satisfactorily proceed with formulating a program for the lessening of what we call poverty in rural areas, we need to know more about the real income of these people. Secretary Wilson has pointed out that income cannot be measured in terms of money alone. Too often there has been a tendency to measure the income of hill people or the people on the less productive lands by corn belt standards, while perhaps these are not the standards by which the hill people wish to be appraised. Do we now have a standard by which we can accurately measure the income in terms of satisfactions of living in a relatively poor agricultural country where the cash income is low but where the coon and squirrel hunting is good, the mortgage debt is low, and the capital investment is not such as to continually push on the operator to make it productive? By which we

can compare his real income with that of the farmer on better and higher priced land with a higher cash income? I doubt if there is any one standard which we can apply to all. There has been too much of a tendency to measure standards by whether the toilet is inside or outside the house rather than by whether or not it is sanitary; by the number of pictures on the wall rather than by the number of cockroaches around the kitchen sink; by outgo rather than by outlook. We need to know more about satisfactory standards for various people of various capacities and of various cash incomes.

Secretary Wilson stated that "In this scientific humanism, there is less emphasis on efficiency as such and more emphasis upon security." Might it not be that there is a difference between individual efficiency and social efficiency. I would think that even in scientific humanism we would want as much efficiency as possible in attaining the desired goals.

DISCUSSION BY DWIGHT SANDERSON

Cornell University

First, let me inadequately express my appreciation of the keynote of this address—the phrase which Mr. Wilson hesitatingly offers—*Scientific Humanism*. It comes as a breath of mountain air to the parched plains. It brings to us the results of a ripened philosophy, which started when the author lived close to the farm folks of Montana, feeling their problems with *Humanism*, but studying them in a *Scientific* manner.

His five assumptions adequately state the problem. I am particularly interested in the fourth and fifth. If there are about 2,000,000 farm families below the poverty line, and the FSA is reaching 600,000, what should and can be done for the rest of them? The WPA, the SSA, and CPWA aid many but on a relief basis, rather than on that of rehabilitation.

Furthermore, these figures are for farm families only. There are also tens of thousands of open-country non-farm families, who need aid and vitally affect the cultural situation of the farm families. There is need of an enlarged advisory service, using material aid only where necessary, but placing chief dependence on the service of skilled workers to these families and their communities.

As pointed out, we need a working definition of rural poverty, based on research. This will vary somewhat with regions and will require research of goodly samples in each region to determine the nature of the characteristics of its rural poverty. One thing the FERA-WPA researches have shown is the large number of persons in some way incapacitated and not qualified for work relief or rehabilitation. These facts gave a new definition to the relief problem. Likewise we need redefinition of rural poverty.

The analysis of attitudes and philosophies toward rural poverty strikes at the heart of the problem, and reveals a basic factor too often ignored. These hark back to the common-sense attitude toward heredity, that "blood will tell," etc., and blaming unsuccessful personalities on germ plasm rather than unfortunate nurture and unsatisfactory environment.

This was strengthened by the neo-Darwinian and neo-Spencerian ideas of the survival of the fittest as applied to humans, which have long been exploded by competent social scientists.¹

It was also derived from the attitudes of the frontiersman and the homesteader, and partly from the older theological ideas, not entirely outmoded, of poverty being the result of sin.

Similar attitudes toward poverty prevailed in cities before the problem became so acute that social work developed and made careful analysis of it, as in Charles Booth's survey of poverty in London.² The results of such studies exploded the idea of personal responsibility for poverty for large masses. City poverty has been studied by scientific methods for a half-century.

Until recently rural sociologists fought shy of studies of rural pathology because it was an unpopular topic; it was thought by their constituents to be of little consequence, and it was not considered an "agricultural" problem. Now the situation has become so acute, that, as in the cities a century ago, there is interest in the facts because something must be done. Rural sociologists are quite ready to accept the challenge, indeed have already pioneered in this field, and will be glad to ally themselves with economists and others, in getting the facts essential for a solution of the problem.

I agree with Mr. Wilson's analysis of the current social philosophies. Under the most favorable conditions it will require generations to effect a possible reorganization of the structure of our National Economy, short of revolution, and rural poverty will still be with us.

I subscribe to his "Scientific Humanism" point of view, and that we need more emphasis on what makes the "good life," and less reliance on its being produced inevitably by mere increased production of material consumers' goods, the "gadgets of civilization."

There are values in the emotional security of the old great family, of the established local culture pattern of the old European village community, and of the rural neighborhood of this country in the 19th century, which are largely lost with modern mobility. This is the price paid for freedom of action. We need to rebuild a sense of local responsibility for the common welfare, for the underprivileged as well as for the middle class.

As to his solutions of the problem:

1. Education with regard to the problem is badly needed. We have been educated about city slums and sweat shops, but there is little appreciation of the same conditions in the open country, particularly by farm folks themselves, possibly because they have not liked to face the facts.

2. New techniques are necessary. A combination of those of extension workers in agriculture and home-making with those of the Social Welfare worker, are essential, but rarely available. The Land Grant Colleges have a peculiar responsibility for giving suitable training to prospective workers

¹ Cf. George Nasmyth, *Social progress and the Darwinian theory*. New York. G. P. Putnam's Sons, 1916.

² Charles Booth, *Life and labour of the people of London*. London, The Macmillan Co., 1892-1897. (17 vols.)

in this field, and also for those now in service, as he indicates in his fifth point.

3. The cooperative principle should certainly be developed as much as possible, but as demonstrated in the whole history of the cooperative movement, it must be based on the self-education of those involved, which is a process requiring wise and unselfish guidance and cannot be effected by any blue-print plan or mere financial facilities.

4. Better educational facilities are a major means for the permanent solution of rural poverty. All studies have shown a high correlation between illiteracy and poverty. The support of federal aid to the poorer states for public education follows as a consequence. Education will help raise the standard of living, and in some unknown way this automatically lowers the birth rate.

I have nothing to say on his proposals for research but a hearty Amen!

With regard to the role of County Planning Committees in this program it would seem that they might be the natural place to start the process of educating farm folks concerning rural poverty. Let them consider what is a reasonable level of living for health and efficiency in their area. How many are below it? Why?

I agree that there is need for aid in establishing local rural industries to make possible part-time farming. This should be done on an experimental basis, on as sound business principles as possible.

As to the proposed solutions of the problem, there is no one panacea. As he indicates, it is not an either-or proposition. Rather it is what he calls the Scientific Humanist program, of using what is feasible in all these methods as adapted to regional conditions, which reveals the most promising path for progress.

In the first draft of his paper he had said: "Who knows but that it will be said in the future that [Steinbeck's] 'Grapes of Wrath' was the 'Uncle Tom's Cabin' of agricultural poverty in the middle of the 20th century." This paper forms an equivalent inspiration and challenge to rural social scientists to make a joint attack on the greatest weakness in rural life, which is, therefore, their greatest opportunity.

NEEDED POINTS OF DEVELOPMENT AND RE-ORIENTATION IN LAND ECONOMIC THEORY

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As one considers our theoretical equipment in land economics, one is impressed with the importance of scrutinizing and making allowance for the practical significance of the numerous assumptions underlying current theoretical dogmas. The various conditions that impede the operation of "perfect" competition, especially institutional factors; the extensive zones in which pecuniary considerations are not predominant; the increasing importance of taking into account social cost and income, particularly potential differences in individual and social time discount—these considerations set the stage for the reorientation of land economic theory.

The Concept of Margins from the Standpoint of its Significance for Land Classification and Land Utilization

The central problems in land economic theory are the determination of the "best" use of land, and land evaluation; tasks which are interrelated.

Land classification is aimed at determination of economic best use from both the entrepreneurial and the social standpoints; although the best use of land does not imply ignoring the best use of the other factors of production.

An important task in land classification is determining the advisability of the advance, the continuance, or the retreat of agriculture—or in conventional terms, the location of the extensive margin of cultivation;—for, the one or the other of these trends has important implications with respect to institutional patterns, capital and debt structure, public finance, and numerous other considerations.

Let us review the problem of margins first from the standpoint of the entrepreneur in a predominantly pecuniary economy.

An agricultural advance may involve the advisability of displacing an existing or potential forest use or range economy by some type of arable farming; or the economic feasibility of reclaiming a desert. The advisability of the retreat of arable farming usually involves also the economic feasibility of its replacement by range grazing, forests, or some other major use, or combination of uses.

In considering the advance of a major use, the potential net returns from competing uses are opportunity costs (sometimes spoken of as intramarginal rents). In case the net value product of the existing use has been negative, the elimination of the continuing loss is an additional consideration in favor of a shift to another major use.

The prices necessary to induce a change in uses will be different for various major uses (or subtypes thereof) within an area, as well as between different areas.

In considering the advance of agriculture, account must be taken of the cost of interest and amortization for the capital to be invested in reclamation, buildings, fences and other structures, but in considering the advisability of its continuance or withdrawal, these costs are not essential; although meeting them may be essential for the particular entrepreneur. Therefore, over relatively long periods there may be a considerable gap between the price level necessary to induce an advance in the margin of cultivation and that necessary to induce a retreat.¹ This difference, however, tends to be large or small in proportion to the length of time under consideration.

By reason of complementary or supplementary relationships with other major uses, it may be found desirable to employ a particular kind of land for a major use which would not be suitable except for these complementary and supplementary relationships, just as such relationships enter into the selection of enterprises on a particular farm.² Thus, arable farming may be remunerative on certain land types that would not be capable of commercial production except for supplementary income from forest, range use, or urban employment.

In Ricardian economics the "extensive," or qualitative, land margin and the marginal producer or firm whose supply is influential in determining normal price are identical; due to the assumption that each grade of land is used as effectively as possible. However, the producers who require relief or subsidies, or who continue operations by accepting less than commercial wages—as, for instance, in parts of the Great Plains—may fail to meet expenses

¹ These points are elaborated by G. M. Peterson and J. K. Galbraith, The concept of marginal land, *JOUR. FARM ECON.*, 1932, 14 (2): 297-298, 299, 307-308.

² For the distinction and the complementary and supplementary relationships involved in the choice of enterprises, see Henry C. Taylor, *Outlines of agricultural economics* (New York, 1925), p. 37 and ff.

not because the land is incapable of use for some type of farming; but because unsuitable size of unit or type of farming, poor technical or business methods, inadequate capital, overvaluation of land, or excessive indebtedness interfere with the competitive forces that tend to an identity of the marginal firm and marginal land.

Henry C. Taylor undertook to demonstrate that superior managers would tend to occupy the better land, since the combination of superior management and superior land would make possible a rental greater than the land could yield under less adequate management.³

The conclusion is subject to the possibility, however, that superior management on inferior land may so overcome natural disadvantages as to result in a differential return greater than the same manager could earn in relation to less competent managerial ability on better land. The relative difference in managerial ability, moreover, may be less marked for handling a small operating unit than for managing a large one. The small-scale operator, handicapped in regard to "capacity" as a manager may be relatively less handicapped or even superior in "efficiency," particularly in types of farming not readily routinized.

We may agree, then, with the conclusion of Messrs. Peterson and Galbraith that the extensive margin "in abstract theory at least is a highly mobile or dynamic concept"—not "a definitely fixed grade of land,"⁴ and particularly not determined exclusively by the conditions considered determinative in conventional theory. Therefore, exclusive dependence on mere indicia of submarginality or supermarginality, such as real estate values, is likely to result in very unreliable conclusions.⁵ Indicia such as condition of buildings, extent of tax delinquency, number of foreclosures, or farm abandonment may be helpful as preliminary clues, and lack of time or of funds may necessitate dependence on them; but they are not a safe basis of final judgment as to best use. In considering the advance of a new use into an area, such indicia may have little value even as clues. Even where a given use has been established long enough to

³ *Op. cit.*, pp. 239-245. While Dr. Taylor illustrates his conclusion mathematically, this does not necessarily imply a recognition of its logical inevitability, but rather, a belief in the existence of a trend confirmed by observation.

⁴ *Op. cit.*, p. 306.

⁵ In a recent stimulating article David Weeks and H. R. Josephson have outlined some of the numerous circumstances that prevent rentals and land prices from reflecting accurately differences in net returns from land use. Classification of nonurban land, *JOUR. FARM ECON.*, 1939, 21 (2): 424.

reflect its economic status in some of the indicia mentioned, economic analysis is requisite to make sure that the indicated non-adaptability of the major use is due to land character, rather than to the human factor, to prevailing subtype of use, size of units, degree of intensity, or institutional conditions.

Classical theory is built around the equalization of marginal returns, both as between marginal lands in different locations and as between marginal lands and intensive margins on better lands. The core of truth is that some migration tends to occur from low-level nations to high-level nations; but inertias due to racial differences, cultural attachments, and recently political restrictions emphasize the essential correctness of J. E. Cairnes' "Theory of Noncompeting Groups," as witness the continuing contrasts in real wages between say, the United States and China or Central America, and in the Southern Appalachians, the Corn Belt and the Cotton Belt. The influence of the extensive margin within an area on wages may be more real than as between areas.

It is probable, moreover, that the influence of the land margin may be greater in areas devoted largely to extractive occupations than in areas characterized by great diversities in employments, many not directly dependent on availability of natural resources. In a predominantly industrial region or nation, instead of the return to labor on the extensive margin of agricultural land use largely influencing the wages of labor in other occupations, conditions of industrial employment profoundly influence the level of return of labor in agriculture, not only directly, but also indirectly through affecting the prices of farm products and affording an outlet for a redundant farm population.⁶

In any case, from the standpoint of individual economy, the entrepreneur must accept the wage level as he finds it, whether it be influenced primarily by returns at the qualitative land margin or by other conditions; although such acceptance does not follow inevitably in considering best use from a social point of view.⁷

⁶ This point is clearly illustrated by the relationships between urban and farm wages in Germany and other countries described by F. W. Von Bülow; *Farm Labour and Social Standards*, Proceedings Fifth International Conference Of Agricultural Economics, Aug., 1938 (Proof copy), pp. 2-4, 6-7.

⁷ In classifying land from the latter standpoint we may find ourselves in a vicious circle; the use of poor land may appear financially practicable because wages are low, but they may be low, in turn, because the land is poor. The intensification of such conditions and their perpetuation are likely to result from the tendency to high birth rates associated with poverty, ignorance, technical and business incapacity, lack of initiative, lack of capital, morbidity, inability to emigrate, and other disabilities which are concomitants of extreme poverty.

Lack of uniformity of returns on extensive margins implies also lack of uniformity on intensive margins as between various areas. Differences in intensity between various areas emerge also by reason of differences of land in "capacity," which, as Professor Conrad Hammar has pointed out, may or may not correlate closely with its quality or value.⁸

Statements of the theory of proportionality sometimes ignore the potent influence of institutional factors, such as inheritance laws or customs, land policies, or taxation, in determining size of operating unit, the assumption being that the operator may readily modify the size of the operating unit. In a mature rural economy, however, after buildings, fencing, water supply, layout, population density and the institutional pattern have become adjusted to holdings of a particular size, modifications in size of units, especially an increase in size, meet strong resistance.

Given relative fixity in size of unit, the continuing pressure of a standard of living, taxes, and debt service may induce a degree of intensity for small units that would not be normal if size of unit could be readily modified.

Land Use and Valuation from the Standpoint of a Self-Sufficing Economy

The above discussion, like most existing economic theory, has assumed types of land use carried on primarily with reference to production for market by employing factors of production having a market valuation and by entrepreneurs motivated primarily by the objective of maximum net profit.

In spite of the fact that the peasant economies of Europe have gradually emerged from the regime of status and American rural economy has advanced beyond frontier habits and attitudes, agricultural competition continues to be influenced by certain peculiarities which do not conform closely to the pecuniary assumptions intrinsic in conventional theories of land use and valuation.

1. Richard Jones recognized how largely in the Europe of his day rentals were fixed by custom; not by competition.⁹ There are still survivals of custom-determined rentals or of contractual fix-

⁸ Intensity and land rent: An overlooked aspect of rent theory, *JOUR. FARM ECON.* 20 (4), Nov. 1938. It is important, however, to distinguish clearly between physical and value concepts of capacity or efficiency. Professor Hammar's illustrations are in terms of the former, although he recognizes the distinction.

⁹ Essay on the Distribution of wealth and the sources of taxation.

ity, in emphyteutic leases and similar arrangements; and in America land taxes constitute a necessary payment for land use in many areas little short of economic rent, and but little affected by competition. For considerable periods the terms of share-rent contracts also reflect the influence of custom, although actual rentals vary notably through changes in prices and production.

2. The family as a whole, not the individual, is frequently the unit of competition in labor's valuation of itself. Much family labor fails to respond to the inducements of commercial wage rates because of the obvious economic, social and psychological advantages of a continuing family connection. In areas where agriculture is not predominantly commercial there is frequently the added influence of lack of outside alternatives.

3. Among small farmers capital is frequently valued in conjunction with labor; not in accordance with the levels of alternative investment, especially those of unsophisticated investors. To a young man ownership of a wagon and team, worth, say, \$300, has much more economic significance than the interest and depreciation, amounting to perhaps \$45 a year; for, the wagon and team greatly increase his employment opportunities, and therefore the potential value of his labor, as contrasted with that of a casual laborer.¹⁰

4. Part of the income from farming to the small owner farmer, is the opportunity to accumulate through investing spare-time family labor in clearing land, fencing, construction or improvement of buildings.

5. From another point of view, the small farm may be regarded as an opportunity to obtain food and shelter which may enable members of the family to take advantage of casual employment that would not yield sufficient income for sustenance as a single form of employment.

6. Much of the family consumption may consist of unsalable products, such as culls of fruit or vegetables, or commodities such as fuel produced in spare time. Such things, moreover, constitute proportionately a much greater significance for small farms than for large ones.

7. A number of costs such as dwelling, telephone, and automobile are usually included in costs of production but also yield incidental income not generally included in the income account, or

¹⁰ Land values sometimes reflect these considerations.

if included, may be overvalued if appraised at urban prices but undervalued if appraised at cost of reproduction depreciated.

8. Until the point is reached where family requirements are fully satisfied by commodities that can be produced on the farm without undue increase in unit cost, production of a particular commodity for home use, as contrasted with production for market, is marked by the two-way advantage of transport and marketing differentials.

9. Under favorable tenure arrangements, production for home use may involve important psychological satisfactions in the form of a sense of independence and security.

Such considerations emphasize the need for modified farm management techniques, methods of land valuation and classification for small farms, especially for areas characterized by a good deal of production for home use. In fact, some of the previous farm management conclusions with regard to most remunerative size of farms would probably be invalidated if the considerations mentioned were taken into account.

These considerations suggest also the possible desirability of modifications in the assumptions and conclusions of marginal theories and, moreover, help to explain such economic and social phenomena as the persistence of apparently unprofitable types of farming; continued use of areas clearly submarginal for a pecuniary economy;¹¹ excessive rentals and land values, as, for instance, rack-renting in Ireland; and the resistance of village economy to the intrusion of agricultural capitalism and, for that matter, to communism.

The consequent implications with respect to social value and policy are legion, but beyond the scope of this paper.

Land Use and Value under the Assumption of Exhaustibility

Increased activity in conservation emphasizes the urgent need of clarification of conservation theory, from both entrepreneurial and social points of view.

A quarter of a century ago the senior author of this paper published two articles on the economics of conservation, in the second of which he discussed the principles of land use and value in the

¹¹ Hence, the continuing occupancy of submarginal land is not an absurdity, as sometimes suggested, unless "submarginal" is defined as land that farm operators will not use. Cf. Peterson and Galbraith, *op. cit.*

case of mines.¹² It was shown that instead of a mine owner adding units of labor and capital up to the point where the product of the last "dose" just equals cost, the discount on future potential returns from his stock of minerals modifies this tendency to a point intermediate between the intensive margin for an inexhaustible use-bearer and the point of maximum average returns per unit of labor and capital, which would be the profitable degree of intensity for an exhaustible use-bearer if there were no discount.¹³ An increase in level of both current and expected future prices of the product, other things equal, would stimulate present utilization rather than retard it, but no increase of price would justify a present utilization so intensive that the product of the last dose of labor and capital would just equal its expense.¹⁴

The above conclusions assume an entrepreneur whose volume of production is so negligible in relation to total supply that he may ignore the influence on prices of his contemplated variations in volume. The self-interest of a monopolist will dictate a still lower volume in a given year, as Doctor Harold Hotelling has shown; and the rate of utilization under "duopoly"—that is, a small number of competitors, each producing a quite influential proportion of supply—a volume of production intermediate between that of complete monopoly and full competition.¹⁵

An already mature forest which it is not intended to replace would be subject to the same entrepreneurial principles of utilization as the mine except for the factor of deterioration. The influence of the latter is in the same direction as the discount on the future—emphasizing present, or early utilization; but the influence of deterioration is not quite so potent as that of an equal rate of discount, because deterioration also reduces somewhat the future expense for appropriation.

In contrast with mining, both agriculture and forestry are capable of being conducted without exhaustion of the use-bearer, or at various rates of exhaustion, depending on price-cost relationships.

¹² Economic possibilities of conservation, *Quart. Jour. of Econ.*, May, 1913; Rent under the assumption of exhaustibility, *ibid.*, May, 1914.

¹³ The tendency toward more rapid present appropriation is intensified if the minerals at lower depths are superior in quantity and quality. *Ibid.*, p. 477.

¹⁴ It was shown also that the so-called royalty, as distinguished from rent, is a mere resultant of capitalizing a terminal income and that it is in fact a part of economic rent. *Ibid.*, pp. 479-480, 483-485.

¹⁵ The economics of exhaustible resources, *Jour. of Political Econ.*, 39 (2), Apr., 1931.

Only in certain parts of the United States, however, is soil conservation now consistent with most remunerative agricultural present use, from an entrepreneurial standpoint.¹⁶ Agricultural conservation elsewhere, as well as all timber production, involves foregoing present net income through adoption of less remunerative current enterprises or expenditures looking to future returns; although much merely wanton waste may be eliminated by suitable institutional arrangements, at but little cost to individuals.¹⁷

Professor Wantrup has recently restated the entrepreneurial problem as follows:

"The threshold of profitability for measures of land conservation is reached on a given area of land when the decrease in the present net value of the expected future product, caused by destructive exploitation, exceeds the costs of preventing destruction or of undertaking restoration."¹⁸

He then defines "threshold" as when "the decrease of the present net value of the expected future product caused by the destructive effects upon the land of the production of the marginal physical output" is greater than the marginal costs of preventing destruction or of undertaking restoration. He concludes that, other things equal, conservation possibility increases directly with an increase of the price of product (p. 109) and inversely with the interest rate, as modified by the individual's "time preference and foresight." He also concludes that "since, *caeteris paribus*, economic location determines intensity of land use, that is, input of labor and capital per unit of land area, close geographical and historical parallelism between land conservation and agricultural intensity can be observed."¹⁹

The following clarifications with reference to the above statement appear desirable:

1. The statement is in terms of costs of preventing impairment

¹⁶ Cf. Walter W. Wilcox, Economic aspects of soil conservation, *Jour. of Political Econ.*, Oct. 1938, 46 (5): 702-713.

¹⁷ Particularly when competition stimulates wasteful appropriation of resources that will otherwise be appropriated by competitors, as in the sinking of offset oil wells, the overgrazing of an "open" range, and the taking of game or wildlife under nonexclusive privileges. Cf. the striking statement by John Bates Clark *The economics of waste and conservation*, *Atlantic Monthly*, vol. 106, 1910; also Harold Hotelling, *Op. cit.*, p. 138.

¹⁸ S. Von Ciriacy-Wantrup, Land conservation and social planning, *Plan Age*, Apr. 1939, 5 (4): 109. This is a slightly modified and expanded version of an article by the same author in *JOUR. FARM ECON.*, Economic aspects of land conservation, May, 1938, 20 (2): 462-473.

¹⁹ P. 109. Under *caeteris paribus* he mentions "physical location, size of the family labor force per acre, and skill and industry of the farm operator remaining the same."

or of restoration. It does not indicate principles of utilization in the case of a use-bearer such as a mine when the problem is largely one of rate of utilization, not prevention or restoration.

2. When prevention or restoration is at stake, the "threshold of profitability" has no necessary reference to the destruction for which the marginal physical unit of present utilization is responsible. The impairment which it just pays to prevent may result from some unit or units of product above the intensive margin of present use. The principle governing prevention may be restated as follows: The threshold of economic feasibility for the entrepreneur in preventing deterioration or effecting restoration is reached at the point when the present value of the marginal unit of impairment, either of the future product or of the use-bearer itself, just equals the cost of prevention or restoration.

3. The distinction between the present value of the product and of the use-bearer in the above statement is due to the fact that the capital value of land does not necessarily reflect accurately the capitalization of expected income, and the rate at which it is capitalized in the market may be quite different from the rate of discount employed by the entrepreneur in discounting the future product or the impairment thereof. For as long as he expects to farm or lease his land the landowner is likely to be concerned with the prospective decrease in net value of product. As a landowner he is concerned with the resulting decrease in price of his land up to the time he expects to sell it. For this reason landowners probably tolerate depletion, hoping that it will not register itself in land values before the land is sold. A tenant considers only prospective decrease of the net value of product for the period of his tenancy.²⁰

4. Regarding Dr. Wantrup's statement, "Land conservation becomes economically possible only if a relatively high degree of intensity is reached," we must reckon with the fact, already referred to, that comparative advantage frequently makes profitable low intensity on lands of high quality and value. For example, such lands may be most profitable in pasture, an extensive use frequently consistent with soil conservation.

Social Time Preference and Social Value

As Dr. Wantrup properly recognizes, social time preference may be different from either the market discount rate or, of course, also

²⁰ Any operator, of course, is influenced in his decision with reference to conservation methods by the alternative costs of replacement by purchasing or renting other similar natural resources.

from individual time preference rates, some of which may be negative.²¹

Social discount is not necessarily due to the fact that governments borrow money; nor is the rate of the "proper" social discount necessarily identical with the rate governments pay on borrowed money.

The differences between present and future social values of specific natural resources are in part independent of a competitive discount rate, whether the discount is a phenomenon of social psychology, a resultant of the marginal productivity of savings invested in "roundabout" processes, or of the hazards of future frustrations. For instance, a compound interest rate for anything but a short period of time—which might be considered by the individual investor—would place an excessive premium on present use and virtually prohibit a provident policy for a remote future. Even a moderate rate of simple interest might make a present expenditure or sacrifice to conserve an exhaustible resource for a remote future appear extravagant. A private enterpriser might reason, if the oil or copper is sold now rather than held for one hundred years, the proceeds invested even at simple interest will amount to several times as much as they would likely sell for. This reasoning differs from that of organized society partly in that it considers future value in terms of the effect on market prices of the small segment of the supply which is controlled, consciously or unconsciously accepting the process of marginal utility valuation. Organized society must consider the consequence in the future of the destruction of total supply, or a large portion thereof, resulting from the actions of numerous individuals controlling various segments. Therefore, from the social standpoint loss in future value is more nearly identical with total utility, not the product of the various segments controlled by different individuals multiplied by the value (or utility) of the marginal segment.²²

The potential divergence of a competitively established time discount and social values is illustrated by the fact that a zero discount would be equivalent to spreading utilization over an infinite number of years, with an infinitesimally small portion available in each—this year and next year as well as a million years from now. A very high rate of discount would concentrate the consumption of

²¹ Plan Age, 5 (4): 116-117.

²² As John Maurice Clark has suggested, social values may be "anti-marginal." Preface to *Social Economics* (New York, 1936), p. 59.

an abnormally large amount in the present, not only depressing market value (assuming the type of social organization permits individual valuations to be registered through market mechanisms) but possibly also doing violence to standards of social value.

Even though the form of social organization and social policy were divorced from individual time preference, some social premium on present utilization would probably result from consideration of increasing productivity and increasing utility. If utilization of a limited and irreplaceable resource were spread over too long a period so that only a negligible amount were available each year, the cost per unit, both for extraction and secondary processing, would be unduly high. Moreover, because of the complementary character of consumption, the utility of each unit consumed would be less than if a somewhat larger amount were consumed each year. Philosophically, it seems probable, therefore, that to maximize the utility derived from the limited and irreplaceable resource, society should utilize that quantity each year which would yield the maximum net utility as determined by the joint consideration of the point of maximum social utility per unit and minimum cost (maximum product per unit of expense) for utilization.²³

The extent to which organized society can practically ignore competitive discount rates is limited by the difficulty of foreseeing future costs and utilities, possible future substitutions, and also by form of social organization. A democratic regime is likely to be largely influenced by the time preference rates of its members. Such considerations as extent of national debt held abroad may prove a significant factor. Organized society, moreover, can not put so low a premium on present use as will seriously impair that part of reproducible capital dependent on natural resources.²⁴

Both present and future social utilities, moreover, are likely to reflect quite different considerations than serve to explain market valuations. Such considerations as continuity and security of the state, aesthetic qualities of the landscape, the costliness of periodically liquidating and recreating communities, probability of developing substitutes or of changing requirements are of sig-

²³ Analogous to the formula which it was concluded above would be most remunerative to the individual mine owner if he did not have to consider a discount on the future. Cf. the article: Rent under the assumption of exhaustibility, *Quar. Jour. Econ.*, May, 1914.

²⁴ This point is suggested by Conrad Hammar: Economic aspects of conservation in *Jour. of Land and Public Utility Economics*, May 1931, 7 (2): 287.

nificance.²⁶ Such considerations may have more to do than market valuations and competitive discount rates with answering such difficult questions as whether we owe future generations as opulent a supply as we may enjoy in the present or whether we should conserve the cream of our resources in quality and location by consuming the skim milk in the present.

This brief discussion of social valuation in conservation is merely illustrative of the fact that land economics, to a greater degree, perhaps, than most phases of agricultural economics, is confronted with the problem of social valuations. In other writings, the senior author of this paper has called attention to some of the social considerations involved in the determination of best use, discussed in the earlier part of the present paper mainly from the entrepreneurial standpoint. In considering changes in major use, size of operating unit, and intensity of use, such important consequences as the effect of the changes on institutional patterns, employment, economic security, and economic and social stability, may be of great significance.²⁶ Without question the formulation of the principles and methodologies for evaluating these broad social considerations in determining best land use is a significant frontier which land economics is urgently called on to extend, a task, however, which must be shared with sociology, psychology, and ethics.²⁷

DISCUSSIONS BY M. M. KELSO

Bureau of Agricultural Economics

The discussion of the paper "Needed Points of Development and Reorientation in Land Economic Theory" by Dr. Gray and Mark M. Regan concerned four major points raised by the authors in their paper:

DR. CONRAD H. HAMMAR discussed "The Concept of Margins from the Standpoint of Its Significance for Land Classification and Land Utilization" and found no major point of their discussion with which to take issue. As a minor point he questioned their use of the phrase "land classification" because of its use synonymous with "land policy" and the complete ignoring of that phase of its meaning associated with land description.

As of greater significance he questioned the orientation of the authors in

²⁶ Concerning the importance of present substitution of abundance for potentially scarce commodities, see Conrad Hammar, *Economic aspects of conservation*, p. 286.

²⁶ The social and economic implications of the national land program, in *Jour. Farm Econ.*, May 1936, 18 (2). Cf. also the article by Weeks and Josephson cited above, and Sherman Johnson, *Definitions of efficient farming*, *Land Policy Review*, Sept.-Oct., 1939, 2 (5).

²⁷ Cf. Clark, J. M., *op. cit.*, pp. 60-61.

their discussion of the topic, in that the set of their argument had three quite distinct characteristics: (1) They had adopted a strictly conventional definition of economic theory; (2) Their discussion centered almost exclusively about developments and needed developments within the field; and (3) Their references were closely centered upon the contributions of accepted land economists only. That is, they had used what might be called an internal approach and had neglected to a large degree the problem of reorienting land economic theory to developments external to it. He proceeded then to discuss what in his opinion would have been the nature of the main paper had the authors looked to the reorientation of land economic theory that is needed if land economists are to be as adept as they will need to be in adapting themselves to changes in the general economic, political and social fields.

Dr. Hammar then developed his thought with reference to two points: (1) The collapse of faith in the ability of an individualistic economy to maintain employment and distribute the fruits of its operations in a sufficiently equitable manner; and (2) The deep ferment of uncertainty that is probably a normal accompaniment of the shift in such fundamental beliefs. Certain events indicate a reorientation to these external developments, particularly the rise of organization and control. As examples, he cited the increasing concern of land economists for contact with law, political science and sociology as evidenced by the increasing extent to which they are lending themselves to work of an organizational nature and to proposing new and acceptable means of extending organization and control over the use of natural resources. He emphasized that this new development did not detract from the need for greater sophistication in the more conventional aspects of land economic theory. Because there is a strong tendency for an increasingly organized society to lose something in flexibility, the drive toward greater social organization and control not only multiplies the opportunities for mistakes but makes those that are made harder to detect and more difficult to correct. As the authors had said the extensive margins of land utilization are highly dynamic and difficult to locate. Yet, under the modern drive for greater organization and control these margins are getting definition in an increasingly rigid manner so that the need for discovering their location though difficult is of growing importance. The free and flexible margins of economic individualism are being traded for more rigid margins defended by law. Legal or institutional margins once established are not easily changed. The need for care in associating accurately the free and institutional margins and the need for the kind of reorientation and development in land economic theory discussed by the authors is therefore apparent.

DR. R. H. ALLEN discussed "The Theory of Land Use and Valuation, Re-examined from the Standpoint of a Self-Sufficing Economy." He directed his discussion toward the type of situation that exists in areas in which farm units characterized by a large proportion of production for home use are numerous. He agreed that considerations to which the authors of the paper had called attention if taken as supplementary to our usual type of analysis would assist materially in explaining the continued

existence of farm operating units under conditions in which the income to labor and capital is apparently much less than in most commercial farming areas. Their explanation seemed to include two major elements: (1) By using criteria in which monetary measures are dominant, we may have been over-stating the differences in real income between commercial and self-sufficing farming; and (2) a number of the points listed helped to explain why farmers in self-sufficing farms remain in their present situations even though an adequate accounting of the intangible elements in income would still indicate some disparity. He thought that it would be worthwhile to push somewhat further in considering the problem of the incomes of farm families at the extensive margin of agriculture in self-sufficing areas in relation to alternative opportunities for employment and suggested that perhaps we have an approximate adjustment on the part of the individuals under consideration to the situation of chronic, widespread, unemployment with their labor and capital yielding a marginal product equal to or greater than that which could be obtained in the best alternatives that are open.

He pointed out that land classifications which indicate that present farming areas are unsuited to agriculture must depend for their validity upon certain conclusions with respect to adjustments in other segments of our economy. If the welfare of the people is taken to be the final goal of land use planning, land is not being used poorly unless it can be used otherwise by making adjustments elsewhere in our economy that will improve the situation of all people affected. It is important to consider all of the adjustments involved in converting an area from an agricultural use to something more extensive before coming to a decision as to best use. He then suggested certain types of measures which might be necessary in actual practice to effect proposed shifts in land use in self-sufficing areas. Certainly, to classify an area as unsuited to agricultural use does not remove the responsibility or at least the challenge to work out methods whereby the self-sufficing farmers with scanty resources, who are likely to remain where they are for many years, may live better on the basis of the resources at their command. Perhaps this calls for some innovations in farm management and home-making research techniques, although under these conditions the conventional ones have scarcely been given an adequate trial.

MR. L. A. SALTER, JR., in his discussion of "Land Use and Value under the Assumption of Exhaustibility," stated that as heavier demands are placed upon economists who are primarily concerned with the disposition of our natural resources, it becomes more essential that they have an organized framework of principles available. He pointed out that the authors indicate that the question of exhaustibility can be segregated as between problems of resources, like minerals, which cannot be replaced after use and those, like farm lands, the use-impairment of which may be prevented or replaced. Yet, it is necessary to remember that, under certain conditions, the rather slight use-impairment of farm lands may develop into actual destruction of the resources. He pointed out that there is no evidence of agreement as to the proper analysis of rent for mineral lands and traced

the uncertainty in the analysis that has existed during the last 40 years. He stated that the obvious confusion on rent theory for mineral lands is but one aspect of the prevailing dissidence as to the meaning of rent in general and pointed out that we are confronted with the task of first clarifying the rent concept before we can be in a position to introduce necessary qualifications for exhaustible properties.

The statement by the authors that a mine owner will not apply labor and capital up to the intensive margin is based upon a number of assumptions which must be kept in mind, among them being that the analysis is in terms of a given surface of land; that the area of surface may be unmeaning in the analysis of mineral land rents; that the statement is not meant to hold after the scale of production has been determined; that effects upon the price of the product or the cost of the factors of production are not considered; and that the assumption of exhaustibility also means the exhaustion of all other opportunities for the use of entrepreneurial ability or capital.

In turning to the problem of farm land conservation, he pointed out that we have hardly gone further than to put into marginal terminology the observation that soil is conserved if it pays to do so, an observation which in itself shows the dearth of advanced work on the subject.

He noted that the section of the paper which he was discussing had been written more or less as a preamble to dealing with the social economics of conservation, and mentioned the necessity for considering seriously the dangers of trying to carry over into the analysis of social problems the same techniques which, in a measure, are justified for studying the economic decisions of individuals. In this connection he pointed out the tendency on the part of some to believe that an adequate body of land economics theory would deal only with questions of prices and costs, rents and valuations, considering the modifying or institutional factors as practical considerations which are outside the content of theory. In his opinion the problems of rent and values, prices and costs are no more subject to theoretical treatment than are those commonly referred to under the broad term "institutional factors." We should encourage progress in all phases of land economics theory, using such new or old approaches as are best suited to each particular segment of the total problem, thus adding to the achievement of the major task of economic theory which is, as argued by Professor Lerner, to reconcile static and constant concepts with evolutionary and contingent concepts; taking concepts that interlock with mechanical precision in explaining price determination and reconcile them with concepts stressing psychological habits and attitudes in the market.

DR. R. R. RENNE in his discussion of "Social Time Preference and Social Value in Land Economic Theory" agreed that the evaluation of broad social considerations in determining best land use is a significant frontier which land economics must share with sociology, psychology, and ethics. He then cited specific examples of where and how some of the implications or interpretations of this statement could be applied to advantage. In his opinion economic considerations are and undoubtedly will continue to be very influential forces, but relative to all of the forces which come into

play in determining best land use, they will probably tend to decline in importance.

One example of influence of changes in the institutional pattern as a force determining best land use compared with strict economic considerations alone, is area diversification as a desirable land use pattern in the Great Plains. The economic considerations of a more stable and larger farm income will be important in securing support for the adoption of such a land use pattern, as will be the economies associated with more compact settlement; but the significant social considerations associated with more compact settlement and community living and the prime psychological factors, together with ethical considerations founded upon the urge for economic and social security and stability, will be the deciding factors.

Another example of non-economic considerations determining best land use is found in the irrigation developments in the Western States. Favorable support for these developments frequently involves predominantly sociological and psychological forces rather than purely economic forces. These examples do not imply the social desirability of the programs mentioned, but merely serve to indicate that considerations other than purely economic seem to be decision-making factors. Of significance is the observation that many far-reaching changes in our present land use programs would necessitate an educational program changing the attitudes of a majority of our people with reference to these sociological, psychological and ethical considerations rather than through economic considerations alone. Economic considerations cannot, however, be completely ignored, and frequently are closely inter-related with the sociological, psychological and ethical considerations discussed by the authors in their paper. He wished to impress upon those working in the field of land economics the significance of considerations other than the economic which should be borne in mind constantly when principles of, and methodologies for, determining best land use are formulated.

DR. A. B. LEWIS urged that rather than to use the words "may" and "may not" in discussing the results which might follow from an application of land economic principles to problems of land use, it would be more useful to use the words "do" and "do not." He stated that we can observe that there are certain areas where, if we can rely on the experience of farmers over a period of years, the land has not been productive enough to maintain the capital which is required for agriculture. We can then assume that we will be correct in stating that we are beyond the margin of desirable agricultural occupancy, but should not stop at that point. We should study, for as long a period as possible, all facts associated with the apparent submarginal use so that we may know the causes associated with bringing the present condition about. Then we can predict whether or not that area will remain submarginal or whether it will change. He would place a good deal more confidence in the experience of farmers in trying to make use of the land than he would in what land planners might describe as the ability of the land to support farmers.

On the basis of experience with farmers in China, who, from the Ameri-

can point of view, would be regarded as subsistence farmers, he felt that there is no difference in the motives which self-sufficing farmers have with regard to the use of their land than those which motivate commercial farmers. This rests upon the reason that even a self-sufficing farmer obtains cash income from the sale of products with which to buy the bare necessities of life, and that fluctuation in these prices, though small, may deprive him of those necessities, a deprivation which may be a more severe blow to his standard of living than would be a proportionate change of price upon the standard of living of the commercial farmer. He pointed out that there is a difference between the subsistence farm and the sub-marginal farm and that thinking concerning the two should not be confused.

He mentioned further with reference to a statement in the main paper to the effect that there is no particular and direct connection between type of use and intensity of use that the use of land for pasture may be just as intensive as its use for wheat; that intensity of use is an outcome of returns to the land in that use as compared to returns from other alternative uses.

DR. DAVID ROZMAN noted that land economists have for some time been emphasizing only one side of Ricardo's theory of rent as related to problems of land classification, that being the element of fertility and productivity of land. In his opinion, the other side of the theory, that of location, particularly as developed by von Thunen, has not been sufficiently emphasized. He felt the necessity of considering the locational element in land classification particularly in connection with problems of land classification in the New England States.

DR. GEORGE WEHRWEIN concluded the discussion with the observation that it may be worthwhile to consider the possibility for having a separate theory of rent for each major class of land, with urban rents which are most clearly in accord with Ricardo's theory at one extreme, and with rent of mineral lands apparently at the other extreme, with varying theories of rent for other classes of land which fall between these extremes. He observed further the necessity for all economists to consider rent as an element in the distribution of income. Ever since Ricardo, we have been and still are talking of rent as a residual of the production process.

NATURE AND SCOPE OF TRAINING FOR MEN CONTEMPLATING WORK IN THE FIELD OF AGRICULTURAL ECONOMICS¹

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The subject of my paper today was not of my own selection, but I propose to take the liberty of interpreting it in my own way. I shall assume that the phrase "work in the field of agricultural economics" does not mean operating a farm, or an agricultural marketing business or other agricultural business, or doing extension work. I shall take it to mean following the career of a teacher or of a research worker in a college, in the United States Department of Agriculture, in a state department of agriculture, in a state experiment station, or in a private business. I would class farmers' co-operatives as private business.

For such a career the four years' undergraduate course is quite inadequate. Men do not emerge from it fully trained as agricultural economists. For the careers I have indicated some graduate training is necessary—indeed one year of it is rarely sufficient. It is to the training of men for such work that I propose to address myself today. The subject is so large and the time allotted to me so short that I shall make no pretense to giving complete specifications for a graduate course. I shall deal only with a few general principles that I regard as important.

But first I must explain to you what I regard as the purpose of graduate training. I believe it to be to train the student "to view problems freshly and to develop versatile skills for coping with them."² You may not agree with me in this but nevertheless it is the assumption that underlies what I am about to say.

Agricultural economics, insofar as it is science, is applied science. By this I mean that its problems, like those of other applied sciences, require the employment of more than one discipline for their solution. The several disciplines we so employ become our tools. Hence, under the assumption I am making, the training of graduate students for work in the field of agricultural economics consists of two phases: (1) giving them familiarity with these tools, with

¹ Paper No. 84. The Giannini Foundation of Agricultural Economics. This paper was read at the thirtieth annual meeting of the American Farm Economic Association at Philadelphia, December 27-29, 1939.

² R. Lynd, *Knowledge for what*. P. 168.

their merits, defects and limitations, and (2) teaching them how to use these tools in the solution of problems in agricultural economics. The most important tools the agricultural economist must employ are economic theory and statistics. He should also be familiar with the methods of the historian. Furthermore, one might include sociology, some aspects of accountancy, the theory of politics and public administration.

In giving training in the nature and value of these tools, those departments of agricultural economics that are an integral part of a university have the advantage. They have, for example, on the same campus a university department of economics upon which they can rely to give their students a training in basic economics. The department of agricultural economics in a college independent of the state university is seriously handicapped in this respect for it must devote a very considerable part of its resources to the teaching of economics as such in preparation for work in agricultural economics. Some agricultural college administrators are unwilling to devote the necessary resources to the development of a department of the size required to give thorough training in general economics as well as in agricultural economics. So it is not astonishing that our experience in the University of California is that many students who come to us really know very little economics. This is true, of course, only of some students, for many agricultural colleges have established excellent sections of economics as a part of their departments of agricultural economics. I would strongly recommend that a department which is not blessed with a sister department of general economics on the same campus take steps to appraise what it is doing to train its students in general economics and to strengthen its staff, if the case demands, in order that it may turn out men who are above all good economists.

Also I deem it of fundamental importance for our country that research in general economics be fostered in colleges of agriculture. I hold this conviction strongly because in it lies, I am certain, one of the paths of salvation for pure economics as a field of scholarship. What economic science needs today above all else is contact with reality, to the end that it may gradually become a body of experiential knowledge and less a system based upon postulates and assumptions of doubtful validity.

Theoretically, if we are part of a full university, it should be unnecessary for us to teach any pure economics at all. We ought to be

able to depend upon our sister departments of economics to train our students to familiarity with the use of economics as a tool. In practice, unfortunately, we cannot so rely upon them for the very simple reason that the purpose of departments of economics is not to teach economics so that it may serve as a tool, but rather to make professional economists of their students. And this is true in every other university discipline. Each department builds up a hierarchy of courses designed to produce professionals. Rarely is training offered as we would have it for our purposes: to train in the use of this discipline as a tool. Engineering departments and medical schools have the same experience with the teaching of pure science. Hence a department of agricultural economics must do some of the training of its students in the use of their tools. What I mean is well illustrated by the subject that we know as "Production Economics." This seems to me to cover some of the same ground as that covered in an advanced course in the general principles of economics with this important difference: the standard advanced course in principles of economics as given in a department of economics is oriented toward industry and trade whereas the courses in production economics as given in our departments of agricultural economics are oriented toward agricultural production and the distribution of agricultural products.

An agricultural economist should above all be an economist, not, as is so common, an agronomist with a veneer, often a paper-thin veneer, of economics. He should have training in the most advanced economic theory not merely for its own sake but because this discipline is one of the best devices yet invented by the human mind to develop powers of analysis. The development of these powers is a most important means to achieve what I have assumed to be the end of graduate training, namely "to view problems freshly and to develop versatile skills for coping with them." This end is not so well achieved by descriptive courses as by analytical ones, like those in economic theory.

Because statistics and the mathematics upon which it is based is not descriptive but furnishes excellent training in analysis, I deem this subject to be invaluable in the training of the graduate student even if in after life he is not required to use statistical methods. Moreover, he needs such knowledge in order to be able to follow the literature of the social sciences in the coming decades. Without it the graduate student of today will, I am convinced,

find himself when he arrives at middle age quite unable to understand much of the progress then being made. The difficulty in obtaining this minimum of mathematics and statistics is due to the circumstance that a university department of mathematics, as I have already pointed out, is loathe to act as a service department. It cares only to train professionals. It makes demands on the students that are far too great if they do not intend to become professional mathematicians. The answer is I think that we must teach the necessary mathematics and statistics in our own departments until such time as our departments of mathematics are willing to do it in the manner we regard as desirable.

Granted that we have taught our student the use of his tools: economics, statistics, history, political theory, public administration and the like, he must then have some material on which to practice their use just as the sculptor needs a block of marble on which to develop his skill in using chisel and mallet. What marble is for the sculptor, factual material is for the student of agricultural economics. It's of two sorts: that derived from the natural sciences, like agronomy, animal industry and much of farm management, and that derived from the social sciences like the phenomena of population changes, commerce and trade. With the natural science material we are not here concerned. But how should the student acquire the social science material that he has not already acquired during his undergraduate years?

My answer would be that I would expect the student to get much of this factual material for himself. It's all in print where any intelligent person can find it. In most of our graduate schools we require the student to take altogether too many courses for credit. We continue the spoon feeding to which we have accustomed the undergraduate. Sooner or later men must learn to walk by themselves, to get on without being led. I am confident we lead our students too long after they should be walking erect.

I do not advocate the abandonment of course work, but merely its reduction. I see no good reason why a department of agricultural economics should endeavor to cover in courses the whole vast field. Many courses are purely descriptive, involve the development of no general principles, have little training value and the factual material presented may usually be found in the library if, as, and when the student needs it. I would, however, limit courses to three categories:

1. The important basic subjects like economics principles which every student needs partly for subject matter but principally to develop his analytical powers. I would not require the student to take special courses such as money and banking, transportation, international trade and the like. I should not expect more of him than that he should know general economics thoroughly. If he has that he can learn the special fields for himself.

2. One or two correlating courses requiring generalizing talent on the part of the instructor in bringing together and synthesizing a wide range of information and points of view. I have in mind such subjects as agricultural policy or land use. Such a course or courses might well be given only in alternate years.

3. A few highly specialized courses in the fields in which members of the staff are actively doing research to the end that the student may follow the teacher in his forays into the no-man's land of the unknown.

I would cut down the descriptive courses to a minimum; for example I should reduce the effort put into teaching marketing. Today, as measured by units of credit, one third of all the courses offered in the departments of agricultural economics are in marketing. There is a good historical reason for this which I haven't time to analyze. I merely note that in my opinion the phenomenon is an anachronistic survival for marketing as such is not a subject at all. It presents no general principles applicable to all commodities that are not better taught in connection with price analysis and the like. Indeed I am of the opinion that marketing is best taught as a phase of commodity economics.

Commodity economics, of course, is no more a homogeneous subject than is marketing but there are many pedagogic advantages in bringing out general principles by doing a complete job on a single commodity. It makes it possible to present a complete and realistic picture of the behavior of a commodity from its production, that is, farm management, through its distribution to the processor and through the economic aspects of the processing industries to the economic behavior of the ultimate consumer. Marketing would be an incident in such treatment. In this way it should be possible to give the student an instructive synthesis. Departments of Agricultural Economics might well consider treating the most important commodity produced in their region in this way. I should classify such a course in the category that I have termed "correlating."

I realize full well that if we require our students to take few or no courses for credit many of them will disappoint us in examinations. Accustomed as they are to spoon feeding they do not always at once learn to do without it. But this in itself is a good criterion for weeding out the weak sisters.

Let us now turn to what I have termed the second phase of graduate training: using the tools for the solution of problems in agricultural economics. It is obvious, at any rate it is to me, that the only way to learn to use tools is to begin using them, and this means beginning to do research under the guidance of an experienced scholar. We should therefore, I believe, set our students to work at research much sooner than we usually do. Some of us tend, I fear, to underestimate the research ability of our better students. Some one has said that the American college is a device to delay maturity. I have seen many a paper by a senior that would be accepted without question as a master's thesis.

We should exercise great care in the choice of the problems we encourage our graduate students to attack. We should curb the ambition of the beginner to tackle a problem so large and basic it would at once, if he found the solution, range him with the immortals. We should start him on something small and modest which he can solve. Thereby we whet his appetite for something more difficult and thus gradually develop his powers. We should never start him on something we have not pretty thoroughly thought through ourselves.

If the research is not to be purely descriptive or historical, the best criterion of the suitability of a problem for a beginner I know of is whether or not it can be put in the form of a single question, or short chain of questions, which can be answered "yes" or "no" by the techniques already available. If the problem can not be formulated in this way it has not been thought through sufficiently to be safe for a beginner.

We should rarely, perhaps never, set a beginner to work on the development of a new research technique or on a problem requiring the development of such a technique. These problems tend to be the most difficult of all and the most uncertain in outcome. They are usually heartbreaking for the beginner. They seem to me permissible only if the instructor has already a definite new method and wants to see if it will work. Then the question to be answered "yes" or "no" is: Will this particular method work under the given circumstances?

We should never use the graduate student for mere reconnaissance work that may lead to nothing or at best be mere ground clearing for something we hope to complete ourselves. We should never use him merely as an extra pair of hands. Many a good man has been so discouraged by having been set to work on a problem too difficult for a beginner, or by having been exploited by his professor, that he gave up the career of the scholar. Students all over the world have been much sinned against in this way.

I regard it as very important that we facilitate the teaching of students by one another. One of the best means to accomplish this is to have a large room or large interconnecting ones in which each student may have his own desk for his work. Throwing them all together in this way creates the sort of atmosphere sometimes found in the atelier of a great artist or the laboratory of a great scientist. Students come to discuss with one another what they read or what they hear in lectures or what they are doing in their own research. They criticize one another's work, one another's reasoning and, most important of all, what their professors tell them. They learn more from one another than they do from their instructors. The principal advantage of certain great graduate schools is not so much that they have a few great men as that they attract many superior students who, coming from many parts of the world, educate one another. There are of course other means of getting students to teach one another, but none so effective as this which I am wont to call the atelier system.

Graduate teaching given in this fashion is a most laborious job—more laborious I am sure than giving courses which tend soon to become stereotyped, for it requires constant contact and consultation with the student. Teaching in this way, we can do justice to only a few students—five in my experience is about all one man can manage. But five really worthy Ph.D. candidates are more than most of us now have.

Finally, I regard it of the utmost importance to the development of our science in America that we discourage our students from getting all their training in one institution no matter how excellent it may be. At different colleges the points of view are different. Different places are interested in different problems, and emphasize different things. In agricultural economics a few journeyman years are especially important since agricultural science unlike such subjects as philosophy, mathematics or philology, inevitably varies

from region to region according to the crops that soil, climate, and markets make possible. Indeed it is desirable for young agricultural economists to study in many parts of the world. Much is to be learned in such countries as England, Germany, Java and Japan by merely going there, looking and asking questions. In my opinion there is perhaps nothing more important for the advancement of our science that our great foundations might do than to establish post-doctoral travelling fellowships without the obligation to produce a research product during incumbency. Obviously one can not do research and travel simultaneously.

Unfortunately there is little we can do to encourage foreign travel but we can facilitate the wandering of students from college to college within the United States if we mend our ways. We need today a levelling of barriers between universities. Some universities cause the student the loss of as much as a year's credit if he transfers there, for they refuse to recognize that a man can learn much of anything except at their own institution. A student transferring must take a lot of courses over again. And this is not the only hurdle he must take. We need a sort of union card for our students which will be honored by every local. Moreover since the country is so large and the expense of moving about so great, it is desirable that the departments of economics in the several regions of the country make arrangements with one another to facilitate the exchange of gifted students. Thus two departments might agree to reserve a substantial fellowship, provided they have one, for a student recommended by the other department and vice versa. Such bilateral arrangements might prove most beneficial both to the students and to the two departments concerned.

And with this plea for the levelling of inter-college barriers in order that students may transfer more freely I close. I fear I have disappointed many of you since I have not taken up in detail the organization of courses and curricula. But in my opinion these are not fundamentally important questions. It doesn't matter so much, I believe, what you teach as how you teach it. Hence I have risked boring you by dealing with the purpose and spirit that should govern the training of men contemplating work in the field of agricultural economics rather than with the organization of courses and curricula.

NEEDED ADDITIONS TO THE THEORETICAL EQUIPMENT OF AN AGRICULTURAL ECONOMIST

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The economist: "He must reach a high standard in several different directions and must combine talents not often found together. He must be mathematician, historian, statesman, philosopher—in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must lie entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician." Keynes on Marshall.

My text falls within the major theme—*Personnel Training and Recruitment*. I am to concern myself about needed theoretical equipment. The point of focus is clear. Just why the phrase, "theoretical equipment," was hit upon is not so clear. If my task is to act as justice of peace and unite theory and equipment that would be risky, because our professional mores and customs do not sanction this brash and unseemly behavior. We are offended by the impropriety of these two even keeping company. It is true that Marshall was prone to speak of economic principles as an engine of analysis and there is sufficient precedent for the notion that the schemes of thinking taken from general economics are a chest of analytical tools which every economist should not only have but should know how to use. But I have not been able to assure myself about my topic. My forebodings are quite simply stated. There are those among us who are instinctively suspicious of the hibernating arm-chair species and who at once see colors that are associated with the lower end of the visible spectrum when the word "theoretical" appears in the record. Then too there are those among us who are filled with sophisticated doubts about that lowly species known as the fact-finding empiricists and who are hurt to the quick when theoretical procedures are referred to as equipment, as if theory were baggage, excess luggage, or even rubbish which we just take along as one does an old umbrella or a pair of rubbers, just in case it should rain. I am sure that what our President thought he had hit upon when he used the phrase, "theoretical equipment," was an

appeal to the optimum point on our impartiality scales. What he really did I fear was to maximize our belligerency. In this he shares the fate of most well-meaning neutrals. His worthy motive, however, should not go unrecognized. It was a noble gesture which deserves to be acclaimed.

* * *

In the discussion that follows I shall make some observations (1) about our statistical tools and (2) on certain newer economic techniques. I shall pick a few examples in each to illustrate the types of analytical tools we need in order better to do our task. I shall assume our task to be problem-solving; that is, research, and the approach to be primarily empirical in nature. Also I shall assume that we are not tool makers but that we are (or at least should be) using the best tools available.

I

First let us take a look at the tool chest marked "Statistics." Agricultural economists are noteworthy in being statistical minded. Our tribe likes to go hunting for figures and we seldom come home empty-handed. Unfortunately for the remainder of society there is no bag limit on figures. I expect that almost to a man we have an abiding faith in quantification.

Of course agricultural economists who have become administrators are no longer so naïve. But the rest of us continue to believe in statistics. They give the illusion of being both concrete and objective. In our simple and trusting belief we think of them as facts. I hope it is not blasphemous to suggest that these facts usually have the convenient property of demonstrating the notions we have in mind. If occasionally they are not in line with our ideas, we promptly edit the schedules or devise a new correlation which adjusts for these aberrations. All this is done on excellent authority and it is not my purpose to imply that this procedure is necessarily wrong. There are those, however, who have said that it is not sufficient.

Several general observations about our statistical materials and techniques may be made.

In the first place, partly as an aside, I want to call attention to how few of our agricultural statistics are useful in making an economic analysis. We are being provided with relatively few statistics that have any exact conceptual counterpart in economic theory. Thus, it is seldom possible to determine the probable valid-

ity of alternative economic effects by having recourse to available statistics. Very few of the 500 to 600 pages of official statistics published each year by the USDA were designed to serve economic inquiry nor are those published by states in this respect any better. This is not to deprecate the substantial progress that has been made in improving the procedures and controls that are employed in making our agricultural statistics. We are not only manufacturing more but also better statistics, than we did a decade or two ago, or for that matter than does any other country, on the other hand we are not set up to manufacture statistics that are efficient in economic analysis.

Let me indicate some of the reasons for this situation: 1. Administrative considerations usually determine what statistics are "saved" or collected. It is clear that the influence of the administrator's point of view has not become less with the rise of the Big Action programs. There are, of course, many more statistics, but these by-products of action programs are not necessarily of any use to economists. 2. Those individuals who are responsible for designing the controls and procedures for manufacturing official statistics usually do not have any precise notion of the nature of a statistic which would be relevant in economic analysis. However, it would be a grave mistake to imply that there are no exceptions to this, for certainly the work of a number of the staff of the Bureau of Agricultural Economics is notable in having contributed to improvement in this sphere. 3. Economists generally have not been altogether helpful in making explicit the type of statistics, and what is equally as important, the conditions that are essential to their manufacture.

In the second place, and more to the point of the topic of this paper: we have a good deal to learn from our colleagues in the biological fields and from the general statisticians on how to design a survey. Our predecessors often tell us how they took to the road on their bicycles in order to make a farm survey. They were genuine pioneers and we owe a great deal to them especially in what they contributed toward furthering empirical studies. Sampling theories, however, were still unknown. Sampling schemes did not reach until quite recently even the biological fields of inquiry where empirical research has been much more mature and advanced than in economics. However, we have been living through a veritable revolution, both in the theory and practice of designing experiments.

This advance has come largely as a result of the application of the contributions of R. A. Fisher and his school. The available sampling techniques now are sufficiently well established so that we can ill afford to continue interviewing those farmers who happen to live along the road which we happen to travel when going into a community to make a survey. To conduct our affairs in this way is to invite being laughed out of court by our colleagues and scientific peers when we submit our results for review and approval. It behooves us to design our surveys so that our sample will meet the conditions of statistical theory. When a survey is properly designed, it becomes relatively easy to summarize and test the data by using the conventional analysis of variance procedure. The need and importance of our using modern sampling devices, especially in farm management surveys, is not easily over estimated. This step in improving our research procedure is quite overdue.

One word of warning needs to be sounded. There are those who expect small sampling theory on which experimental and survey designs are based, and the appropriate statistical techniques for their analysis, to become powerful tools of analysis in handling economic statistics including time series. These expectations are likely to prove over optimistic. It is easy to harm these new techniques by claiming too much for them. This note of caution, however, should not detract a jot from the merits of these techniques in sampling for economic information.

In the third place, it is necessary again to remind ourselves that the conventional statistical methods which we use in agricultural economics are based on the theory that the errors of observation are independent of each other. But since the individual facts that we study virtually always succeed each other in time, they are in reality largely interdependent. Our statistical methods presuppose, in other words, a universe that remains constant while in fact in nearly all of our time series the universe is actually changing while the sampling takes place. Some promising work is being done in developing statistical techniques which are appropriate in handling the economic time series. Dr. Tintner's paper appearing in this issue of the JOURNAL deals directly with this problem. It is my purpose merely to call attention to these developments in statistical procedures, rather than to anticipate the treatment that Dr. Tintner and others will make in suggesting what can and cannot be done in resolving the economic time series.

II

While we count among our ranks a number of able and nationally-recognized students of statistical methods, we are not thus favored when it comes to economics. Economic theory is not our long suit nor do we show a good hand when it comes to economic techniques. We are not inclined to devote ourselves to the task of forging new analytical tools for we distinctly are not tool makers. However, this lack of interest in devising and designing tools is to be expected because it seems to take a rather unusual combination of talents and a high degree of specialization in order to make contributions to pure theory. Our propensity not to make use of the tools that are available, however, is hard to understand. Why is it that of this large and actively engaged professional group, not many individuals are making use of modern economic techniques in their empirical studies? Many reasons for this situation may be given. But this is not the occasion to review them. The fact remains that to the extent that we do not take full advantage of the analytical tools of our mother science in our researches, puts us down with the old line crop specialist who is still trying to do corn breeding by ear inspection in competition with the modern geneticist with his theories and techniques of hybridization. We need to understand more clearly the nature of economic theory and of empirical research. The two are not, as is all too commonly supposed, competitive one with the other; but, quite the contrary, the two are not only complementary, but indispensable to each other.

It is not possible for me in these brief remarks to do more than touch upon a few of the more promising advances in economic techniques. I can only comment, all too sketchily I fear, upon a few developments that are applicable and likely to be quite useful in our fields of interest.

1. There has been much ado recently about the notions of imperfect competition. The techniques of analysis that this development in theory are making available to us appear particularly applicable to two sets of problems which confront agricultural economists, namely, (a) certain important phases of what commonly falls within the province of marketing, and (b) the price and production policies of many industrial firms.

Fewness in the number of firms is not uncommon in the marketing and processing channels through which farm products must move before they reach the consumer. We should no longer make the error of approaching this problem as if it were a case of monop-

oly. Nor should we make the mistake of being carried away by the pleas of these particular industries that the buying and selling of the few firms in them are purely competitive. What this kind of situation represents is clearly and unmistakably oligopoly, and the tools appropriate to its analysis are those that have come out of the advances in imperfect competition theory.

Product differentiation also is characteristic of many firms that process and market farm commodities. On the buying side there is frequently produces preferences (farmers attached to a particular processor) and on the selling side consumer preferences (consumers attached to a particular seller). Both of these situations result in monopolistic competition because of product (or service) differentiation aspects.

The most frequent case, however, is probably both fewness of firms and product differentiation; hence, the type of competition prevailing is likely to be a combination of the two, namely, oligopoly with monopolistic competition. The technique of analysis appropriate to examine the economic effects of firms in an economic environment such as this are fairly intricate. Moreover, the theoretical schemes have not as yet been adequately adapted to empirical research. Thus far its adaptation has been restricted to the selling side of such firms. The problem most urgent and apparent in agricultural marketing is that which arises in the effects of such firms through the buying side of their operations, namely, processors buying farm products. This adaptation of the formal analysis to the buying side presents no fundamentally new problems, however.

In the box in which we keep our economic tools I certainly would include a complete set of the analytical schemes marked imperfect competition. What is more, I would want to understand how to use them. There are sharp edges to be careful about. Their uses are of a highly specialized sort. It will take a lot of good judgment to decide when not to use them and also not to claim too much for them.

2. The articles of Hicks and Allen in 1934 (in *Economica*) have led to a substantial reformulation of the theory of value. For the older utility approach there has been developed the indifference curves notion. While there is room for difference of opinion as to how much is left behind or lost by adopting the indifference curves or maps of individual consumers as a foundation and point of departure, it does give us important additional techniques for understanding consumer demand.

Many problems on which agricultural economists are engaged turn on the effects of changes in income. A number of the action programs in agriculture are based on the assumption that the income effects of the particular program are in a given direction and of a certain order. But the validity of these assumptions has not been put to test chiefly because we have not had any satisfactory techniques for doing the task. Because so many important policy decisions affecting agriculture these days turn on the facts with reference to the income elasticity of given groups of consumers, it would seem especially urgent that steps be taken to try at least to estimate the income elasticities paralleling the earlier work, of agricultural economists in the field of statistical demand curves. With the theoretical advances at hand, it should become possible to isolate both the income and the substitution effects when analyzing consumer demand.

3. Still another area in which the developments in general economics appear to provide useful techniques of analysis is the literature that has become associated with anticipations and expectations. Starting with expectations as given data, then it is our task to explain the plans of producers and of consumers that follow as a result of the expectations. The action agency in which the plans are placed into effect, on the production side of course, is the firm, and for consumption, it becomes the household. The chain runs, therefore, from expectations to plans to action. When it is assumed that these expectations are known with precision and certainty, the analysis of the production process via firms or of consumption through the household follows conventional lines except that attention is focused upon the plan and the function of planning. However when risk and uncertainty are introduced expectations are no longer certain, hence it permits a significant step being taken which brings our analytical techniques much nearer to the real world which we are trying to understand. Our task may well be to explain expectations and analyze producers' plans.

* * *

"Eloquence and erudition have been lavishly spent in the service of Economics. They are good in their way; but what is most wanted now is the power of keeping the head cool and clear in tracing and analysing the combined action of many combined causes. Exceptional genius being left out of account, this power is rarely found save amongst those who have gone through a severe course of work in the more advanced sciences." Again Keynes on Marshall.

NEW DEVELOPMENTS IN PERSONNEL SELECTION, TRAINING AND ADVANCEMENT IN THE FEDERAL SERVICE

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Little needs to be said here justifying the employment of agricultural economists by a Federal agency. It is enough to say that agricultural economists are being employed in increasing numbers and in an increasing variety of assignments not only by the Department of Agriculture but by other Federal agencies.

The personnel planner—and he deals with many uncertainties even as does the agricultural economist—has many reasons to believe that despite possible interruptions, the long time trend will be towards increasing employment of agricultural economists and towards their use in an increasing variety of assignments.

The variety of work reflects the broadening scope of the Department's activities. Agricultural economists are used in considerable number in at least eight agencies of the Department and their assignments now include not only research, education, and specialized informational work but many administrative responsibilities. One of the more recent fields of employment—and a definitely increasing one—is that of county rural rehabilitation agents for the Farm Security Administration.

But whatever the assignment, it is obvious that the task of selection must be faced and faced often. No one can be very proud of any selective process so far established for the recruitment of manpower for any assignment. In the case of the agricultural economists, as in the case of social scientists generally, a great deal of thought has been devoted to the problem in recent years by Federal agencies. That is the most promising thing to report—that the problem is recognized and that it is being attacked seriously.

Processes developed for distinguishing the relative productivity and measuring the values of social scientists who may have worked at adjoining desks or classrooms for twenty years, of course, command no great respect. Such processes usually drip with subjectivity—and subjective processes are suspect to the scientist who worships at the altar of what he chooses to call "Objectivity."

If it is hard to measure objectively the work of agricultural economists who have had twenty years to conduct research, write bulle-

tins and otherwise prove what manner of men they are, it becomes far more difficult to ascertain what the youngster just out of the academic wine-cellar can do. Recruiting officials are up against that problem and I know of no group who view selecting processes with greater humility. That may be most that can be said for them, but that is tribute indeed. After a professional worker has been on a job a few years the composite opinion of his supervisors and colleagues become a fairly reliable guide to his worth—although there are many instances of group error. But at the entrance level, an evaluation is less likely to be trustworthy even if it is possible to undertake the costly process of obtaining a composite judgment. I allude to this simply because I find some impatience in the minds of many of my close friends among the agricultural economists with progress in the field of recruiting and selection—an impatience on their part not unlike that of some of us farmers who perhaps expect agricultural economists to solve the economic problems of all agriculture with a neat, convenient formula.

We should distinguish between selection of agricultural economists through Civil Service for the so-called "Permanent" service and for the "Excepted" positions, filled presumably for "Emergency Work." It is, I believe, an erroneous assumption, that the drag-net of Civil Service examinations will produce the best, the very best, crop of agricultural economists. Outside of the fact that many young men and women who have selected this field who are rich in talent and promise, choose to enter other fields of employment, there is to be remembered that Civil Service Examinations have as their first obligation allegiance to the competitive principle. The test or tests must be acceptable to many persons with quite differing concepts of fairness. Then there are preferences for exservice men, which have, of course, little significance at entrance levels but are still highly significant in examinations ranging from professional grade two on up. There is compliance with the apportionment act which limits selection of persons for assignment to duty in Washington to those with residence in States which have not exceeded their "quotas"—the last being based on the relationship of state populations to the number of its residents holding government posts at the Nation's Capital.

The employment of agricultural economists in "excepted" positions is affected by a number of special provisions traceable to legislative requirements and not uniform, which need not be discussed

here. Competitive tests for these are not required. Many fine agricultural economists have entered the service of the Department by each route and there is no one in a position to say now—and perhaps never—that the “excepted” group or the “civil service” group is superior or inferior in any respect. It is to the credit of both groups, I believe, that they work together in the interest of the public, within the discipline of their profession, without any reference to their status. The same laws prohibiting political activity apply to both groups.

The principal reason for selecting agricultural economists outside of civil service has been speed. It should be remembered that the Civil Service Commission's staff was sharply curtailed in the period 1930 to 1933 and that the advent of the emergency program in the latter year found the Commission none too well prepared for a task of vast proportions. Now the trend is definitely in the direction of recruiting through civil service and I hope it will continue so—and that feeling is shared, I know, by most administrators in the Department employing agricultural economists.

The rapid increase in government activities has given new impetus to the movement for better personnel administration. The report of the President's Committee on Administrative Management and the Executive Orders of June 24, 1938, have stimulated the adoption of better techniques in programs for personnel selection, training and advancement.

Selection of employees includes everything that is done to get an individual into a job. It begins with the task of attracting the right type of prospective employees to apply for examinations. In many fields of work the government must compete with private industry, with educational institutions and with private research institutions for its quota of the best qualified candidates available for employment. Government officials are becoming aware of the fact that if the best people are to select public service as their life work they must know ahead of time about the scope of work in the organization, about the possibilities and probabilities of reasonably rapid advancement and about the opportunities afforded for a real career. Then they can make comparisons as between government and business, as between government and education, and as between one government agency and another.

Announcements of Civil Service examinations do not fill the bill. The task of providing detailed information about opportuni-

ties in specific agencies is being assumed by personnel officers in those agencies. In the Department of Agriculture we are providing visits by our officials so as to present a better picture of the total program of work and the opportunities it affords. In addition, we recently published a booklet called "Employment Information." This booklet gives in concise form the information a prospective applicant ought to have.

The second step in selection is that of examining applicants to determine fitness for appointment. The Commission is continuously attempting to improve its tests. Much work remains to be done in the direction of developing objective means for measuring such factors as personality, initiative, adaptability, interests and cooperativeness. Some progress is also being made in developing rating scales for examinations. Recently it has established positions of principal examiner—specialists in the various subject matter fields. These principal examiners will keep in close touch with officials in operating departments, educational institutions and professional organizations regarding examinations in their special fields.

It may be recalled that in January, 1939, the President established a Committee on Civil Service Improvement with Justice Reed as Chairman. This Committee, which is expected to report within a month, was charged especially with the duty of studying methods of recruiting professional workers for government service. I believe it will have significant recommendations as several of its sub-committees have brought forward some very arresting suggestions.

One of these groups, of which Dr. Stine, a member of this Association, was chairman, recommended in part:

1. Examiners for professional positions should have professional competence in the special field covered by the examination, at least equal to that expected of the successful applicants. The Civil Service Commission should be provided with sufficient funds either to retain such specialists as regular members of its staff or to employ them temporarily when needed.
2. Various positions in the \$1,620 and \$1,800 grades should be recognized by agreement between the Commission and the operating agencies as trainee positions for the professional grades. Promotions from these trainee positions should be

- provided through a system of non-competitive examinations.
3. The general examinations for the two trainee grades and for grades P-1 and P-2 should be designed to establish registers of broadly trained and particularly promising applicants whose minimum qualifications are such as to make possible their assignment to positions in which the development of specialized professional competency may be expected.
 4. The intensive examinations following the general examinations for these professional and trainee grades should be designed to establish ratings of a limited number of the best trained and most promising applicants as determined by the general examinations. Such intensive examinations should be held under the direction of a board of examiners, with the aid of experts in the several fields in which the examinations are held. For positions requiring extensive contacts with representatives of other agencies or with the public, suitable oral examinations for determining fitness for such contact work may be required by the appointing agency. (Compare recommendation 10, below.)
 5. The Commission should cooperate fully with appointing agencies in the advertisement of announcements and in field contact and recruitment. Systematic written prior clearance should be obtained with appointing agencies which may be required to use the resulting registers. (Compare recommendation 9, below.)
 6. New or revised registers for the trainee grades and for grades P-1 and P-2 should be established by June 1 of each year. In order to give the fullest opportunity for agencies to acquaint the Commission with the types of personnel they will require and in order to give ample opportunity for cooperative advertising of announcements, a regular schedule should be established which will assure that registers will be available not later than June 1. Some consideration should be given to the possibility of making a preliminary elimination of candidates by rating them on their relative academic standing.
 7. An appointing agency should be permitted, in requesting certification to fill a position in one of the lower professional grades, to specify the courses or training which the eligible must have had. The only proper limitation on the agency's specification of courses should be that it shall not unreasona-

bly narrow the field of competition so as to endanger the fundamental principle of the merit system.

8. Eligibles should be selected by a general preliminary examination and an intensive examination, as specified in Sections 9 and 10, below.
9. *General preliminary examinations* for positions in these grades should be held sufficiently in advance of the anticipated needs of appointing agencies, and the resulting preliminary registers should be kept up to date either by a system of permanent reregistration or by new announcements which are issued as far in advance of their demand as is practicable.
10. *Each intensive examination* should be given by a special board, consisting of from three to five examiners, chosen by the Commission in consultation with the appointing agency. Members of the staffs of the appointing agency or of the Civil Service Commission should be eligible to sit as members, if professionally qualified in the field of examination. The special board should supervise the selection of a limited number of applicants who have passed the general examination and who appear to be most nearly qualified for the vacant position. The board should prepare written standards for the intensive examination and should codify in writing such additional rulings as it may make during the progress of the examination. The board should, subject to the rules of the Commission, prescribe such examinations for the position as it deems most appropriate, provided that the appointing agency should have the right to request an oral examination. The board should be empowered to reject the entire list of examinees, and upon such rejection the Civil Service Commission should promptly develop a new general list from which a new list of candidates can be selected for new intensive examinations. If no candidates who are found eligible in an intensive examination are willing to accept appointment, a new examination should be held. Persons found eligible in an intensive examination for one agency may be certified to another agency upon its written approval, provided the intensive examination has not been held more than six months previously.
11. Each vacant position in grades P-6 and above should be

filled as a result of a special examination to be conducted by a special board constituted similarly to the special boards for intensive examinations described above in recommendation 10.

12. In the grades P-6 and above, where a special examination should be held for each vacant position to be filled, examination and certification should be essentially a single process.
13. In all other cases eligibles should be certified with due regard to and detailed acquaintance with the needs of the appointing agency. Certifications should be prepared by a certifying officer of professional competence in the special field concerned, or should be subject to the approval of an examiner or special consultant qualified in the special field.
14. There should be closer adherence to Civil Service Rule VII, Sections 1 and 2, so that the principle of geographical apportionment be applied only where candidates are of approximately equal competence. This position has been strongly stated in the sub-committee report to the Reed Committee.
15. There should be statutory authority to permit appointing agencies to pay the travel expenses to Washington or other convenient central points for interview of persons certified to them for positions of grade P-5 or higher.

Training

Significant developments have been made in employee training. In the case of pre-entry training we might note the rapid development of schools of public administration and schools of government. Many colleges and universities have adapted their courses of study to train for government work. This is particularly true of land grant institutions with respect to training for agricultural services. In 1938 the Department made an analysis of the educational backgrounds of some 8,000 Agricultural Extension workers. This year we supplemented that study with a survey of the actual duties performed by nearly 9,000 extension workers. The published reports of these two studies will provide the basis for building a curriculum which will more suitably train men and women for extension work. This same technique might well be applied to other fields.

Graduate school training has become increasingly important for scientific, technical, and administrative positions. The professional

atmosphere of the graduate school and the exposure to extensive research problems gives prospective employees a better grasp of their special field of work.

Training of employees after they enter the service is of course an inseparable part of day to day supervision. To supplement this, special training projects and training programs for various purposes are widespread in the federal government today. In our own Department the most recent survey revealed some three hundred training projects currently in operation, exclusive of educational programs. These projects arise to meet specific needs. The need in some cases may be that of orienting new employees. In others it might be that of increasing proficiency in the performance of a specific type of work, or of preparing for more advanced technical work, or training for specific jobs, or general supervisor training. The projects vary in form from the small informal conference to an intensive instruction course extending over a period of months.

The Secretary of Agriculture, on July 25, 1938, appointed a Committee on In-Service Training to codify existing Departmental policy affecting employee training and education, and to outline a desirable program for future development. The resulting report was published under the title, "Employee Training Policy." It discusses employee training of five general types: namely (1) training in administration and supervision, (2) professional, scientific and technical training, (3) training in office and manual skills, (4) post-entry education, and (5) pre-entry education. The policies, objectives and recommended methods and techniques are set forth for each type, laying a broad foundation for a comprehensive departmental training program.

A specialized type of training is developed here and there in the federal service to provide qualified personnel for administrative positions. They are sometimes referred to as "roving traineeships." Employees who have demonstrated unusual abilities and aptitude for leadership are moved regularly from position to position throughout the organization in order that they will acquire a general knowledge of the total work program and the inter-relations between units before assigning them permanently. We will undoubtedly witness further progress of this technique in the future. Such trainees should be under the general direction of some one responsible official who can carefully plan the sequence of assignments and supervise their progress. The training period should extend over a period of several years.

Another part of the job of training is that of providing facilities for post-entry education. In the Department of Agriculture educational advisers have been designated in every bureau and office. They form a council which works under the leadership of the Office of Personnel. The Counsellors provide information and guidance to employees interested in post-entry education. With the assistance of these advisers, close relations are maintained with educational institutions. Educational courses are offered after official hours for Washington employees by the Department's Graduate School. The Graduate School has been organized and supervised by officials of the Department, but operation costs have been paid from tuition fees set as near as possible to cover the cost. The general program of the school is approved by an Administrative Committee appointed by the Secretary under the chairmanship of the Director of Personnel.

Many undergraduate as well as graduate courses are offered. During the year 1938-39 about 130 courses were offered and there were approximately 4,400 registrations representing approximately 3,000 individuals. About half of these were from the Department of Agriculture and half from other departments of the government, schools and colleges and other agencies. All branches of the Department of Agriculture and all Federal agencies were represented. The Civil Service Commission gives full credit for the courses taken and the credits are also accepted by practically all colleges and universities.

There is need for greater cooperation between government and educational institutions. Greater freedom should be allowed in granting leaves of absence for advanced study. Some method might well be devised for occasional interchange of personnel with colleges, universities, and research institutions. Administrative officials should be free to adjust the working hours of employees who are near colleges to permit attendance at day classes.

Advancement

Employee training is closely related to employee advancement. Opportunity for advancement is the essence of a career service. Government must offer to the new recruit at the junior level the prospect of reasonably rapid promotion.

Approximately two-thirds of all government employees receive less than \$2,000 per year. Thirty per cent receive between \$2,000 and \$5,000. About three and one-fourth per cent in excess of \$5,000.

By and large, this compares favorably with opportunities outside the government. There are many positions which pay attractive salaries and which the well qualified employee can expect to reach. Vacancies in the higher positions can be filled almost exclusively by promotions, providing the selection and training programs have been effective. One vacancy in a high position may cause a long series of promotions all down the line. An administrative official would seriously consider before blocking all of these promotions by filling the vacancy from the outside. Promotions are tonic to an organization. In the Department of Agriculture, and I think throughout the federal service, promotions-from-within have become the general rule. Opportunities for advancement within the particular unit in which an employee is located may be definitely limited. But his opportunity for advancement in the government as a whole is good. In several departments and agencies, including the Department of Agriculture, the promotion-from-within policy has been implemented by machine punch-card equipment. The experience and qualifications of all employees is coded and punched on cards. By sorting these cards through machines it is possible to determine who in the Department will meet the qualifications to fill a given vacancy by promotion or transfer. This insures that no one within the organization will be overlooked when opportunities appear.

The practice of posting notices of vacancies and soliciting applications from within the organization before requesting a certificate from the Civil Service Commission has become more widespread.

The Executive Orders of June 24, 1938, providing for a competitive promotion system has provoked much discussion regarding the advisability of giving competitive examinations for promotion in some lines of work. It is pretty well agreed that promotions should be distributed competitively on the basis of merit. But whether merit can be determined by examination in highly specialized fields is open to question. In the case of many types of positions it is relatively simple to determine relative merit by examination. Promotion examinations are already widely used for such positions as typist, clerk, and machine operators. More extensive use of promotion examinations must depend upon the development of more highly selective tests and the development of techniques for objectively evaluating experience and accomplishments from a qualitative as well as quantitative standpoint.

Although opportunities for advancement in the federal service are, on the whole, reasonably good they probably depend too largely upon the accident of circumstance. They often depend upon the occurrence of dismissals, resignations, deaths, or retirements. Frequently they depend entirely upon the availability of funds. There is great need for a well established and well regulated system of promotions which would not be entirely dependent upon those factors.

I would like to emphasize that although considerable progress has been made during the past few years in the development of personnel techniques, we have by no means reached a point where we can coast.

The impetus given this movement by the recent executive orders and by the general development of personnel management functions in all federal agencies is only beginning to tell. The work now being done by the Council of Personnel Administration, the Civil Service Commission and the President's Committee on Civil Service Improvement will undoubtedly point out the road along which personnel management will develop for many years to come.

PERSONNEL TRAINING AND RECRUITMENT IN AGRICULTURAL ECONOMICS

W. E. GRIMES

Kansas State College

For several years the American Farm Economic Association has had a committee charged with the responsibility of considering the problems in recruiting and training personnel in agricultural economics. Early in its work this committee recognized the need for a thorough survey of the existing situation. Such a survey needs to be thoroughgoing and to consider the problem from all of its angles. In recent years, the demand for men with training in agricultural economics at times has exceeded the supply of capable, well-trained men. The staffs of certain institutions have been depleted as a result of this competition for good men and, in some cases, as a result of other factors.

The committee is interested in knowing the character of the undergraduate training of those who enter graduate schools to take further training in the field of agricultural economics. Also, the quality of those students who take graduate work is of greatest importance. Are too many of those who are taking graduate work students who are mediocre or somewhat above average and who could not secure positions to their liking? Are they, consequently, taking, or have taken, graduate work, hoping that a higher degree will overcome their handicaps? Are those of superior intellectual abilities of the graduating classes being inducted immediately into jobs, when at least a part of this group should take graduate work? What are the factors which prevent these superior students from going on with graduate work, if this occurs? Is it a matter of finances? Or do they lack the needed inspiration and vision?

Of equal importance are the facilities for training men. The most important factor in this connection is the training, experience, and ability of the staffs of the schools offering graduate work in agricultural economics. The committee is concerned about what may have occurred to the staffs of schools that are and should be giving graduate work in agricultural economics. Has the demand for men in this field drained these institutions of the better members of their staffs? Is the graduate training left in the hands of less capable, less experienced staff members? What inducements do these colleges and universities offer that will aid them in retaining their

better men? What inducements are offered to promising young men to continue their studies and better prepare themselves for further work in the field?

These are some of the problems which seem to confront those who are concerned with the recruiting and training of personnel in agricultural economics. They include problems of undergraduate training, requirements for admission to graduate work, the character of the graduate work, the staff giving graduate work and the practices, policies, and facilities of colleges and universities for securing and maintaining satisfactory personnel for giving graduate work. It also involves the problem of in-service training in colleges, universities, the USDA, and elsewhere.

Arrangements have been made for a survey of the type indicated. It is expected that the survey will get under way early in 1940. The committee has been cooperating with the committee on agriculture of the Social Science Research Council. The American Council on Education has secured the needed funds for the survey and it will assume active direction.

In this discussion of personnel recruiting and training, one point on which all will agree is that the students who enter into graduate work in agricultural economics should be of the most capable types available. The character of their undergraduate training is debatable. I am of the opinion that for most of the field of agricultural economics basic training in agriculture and the related sciences is highly desirable. The young person entering the field may secure a foothold without this training and may advance in the field but it seems reasonable to assume that the going would be somewhat easier if the person has a good understanding of the basic considerations of the field of economic activity to which he is directing his attention.

Most important is that the person entering the field be of the type that continues to study even after receiving the master's or the doctor's degree. Every normal person is conscious of deficiencies in knowledge. The person who makes an honest, industrious, and intelligent effort to overcome his deficiencies by wide reading, careful listening, clear thinking, and wise choice of companions will go far in overcoming his deficiencies in technical knowledge. Perhaps he always will feel that it would have been better if the subjects studied independently by him had been taken as formal courses in college but this may not always be the case.

This raises the question of whether those now in the various fields of agriculture are the best judges of the deficiencies in their college training. Naturally, there are subjects which they wish they had taken and in which they feel that their training is inadequate but perhaps it would have been still more inadequate if such courses had been taken and courses which they did take had been omitted. It is questioned whether this is a reliable method of determining the adequacy of the training. This is particularly true since the courses given today differ widely from the courses given ten, twenty, thirty or forty years ago under the same titles.

Another possible pitfall that should be avoided in considering the recruiting and training of personnel in agricultural economics is to assume that the training of the men who have advanced in the field in past years is an infallible guide to the training of men who enter the field at present. This may or may not be a good guide. Careful consideration of present opportunities for various types of training must be made and the one must be chosen which gives promise of giving the best training within a reasonably short time.

There are many other phases of the subject which might be discussed advantageously but time limits require that they be omitted. The committee of the Association is looking forward to the survey dealing with these problems, and the cooperation of all in the field will be necessary to make the survey most useful. Your active cooperation is urged and the committee is confident that it will be given.

DISCUSSION BY O. B. JESNESS

University of Minnesota

Emphasis is laid on economic theory and statistics as essentials in preparation for work in agricultural economics by both Dr. Alsberg and Dr. Schultz. Undoubtedly, the members of this audience find themselves in substantial agreement on this general point. Differences exist, however, with respect to the specific purposes which these fields are intended to serve and the sort of preparation in each which will yield the best results.

Linking economic theory and statistics in this manner may imply that they are of equal rank and serve the same function. However, we can not speak of economic theory as a tool of analysis in the same sense as we apply the term "tool" to statistics. Economic theory does not supply us with some stereotyped methodology for use in attack upon a research problem. It is instead the background or frame work which helps direct our analysis and interpret our findings. On the other hand, statistical methods are in the nature of specific tools for research use.

Dr. Alsberg sees advantage for agricultural economics in a university where a sister department is available to provide courses in general economics. I find myself sympathetic with this view but still must admit that it is the substance rather than the form which is important. The situation referred to by Dr. Alsberg is a highly desirable one in institutions with strong departments in both fields, providing advantage is taken of it. Unfortunately, there are universities where there is inadequate contact between the two. There are also universities lacking in strength in either one or both of these departments. On the other hand, there are some state agricultural colleges which are well equipped in both fields, either in the same or in separate departments.

A question may well be raised whether institutions which are inadequately equipped in one or both fields should encourage students to remain for graduate work. They might better concentrate their attention, at least for the present, on strengthening their service to undergraduate students and guiding the more promising graduates to other institutions for further work.

Professor Alsberg makes one or two comments which appear to suggest that economic theory and statistics may be good training for the mind aside from the value of their content. Far be it from me to resurrect the old-time debate over this question. All I want to suggest is that I feel reasonably certain that I am not alone in holding the view that courses no longer can rest their cases on such claims. It is content not merely mental gymnastics which we look for in courses.

The remarks relative to the unwillingness of various other departments to provide us with courses in their fields suited to other than those specializing therein are in line with experiences which are entirely too numerous. Let us bear that in mind in planning our own courses in order that the mass of agricultural students who are not intent on becoming agricultural economists may have left open to them reasonable opportunity for getting the work they need in our field.

My views accord with those of Professor Alsberg in his emphasis on economic theory for all agricultural economists. When it comes to statistics, a difference in emphasis might be noted. Some of our students plan to go into research requiring mastery of statistical methods; for others, work in statistics serves as part of their general background preparation. Statistical preparation including mathematical background should receive more emphasis in case of the former group.

Will Dr. Alsberg's suggestion that course requirements be minimized lead to the results he anticipates? If graduate students are required to take courses which in fact are purely descriptive, does not the principal fault lie with the courses and the instructors? Is it not the function of the teacher to see that his courses are more than that? If he is unable to make his teaching in the class room contribute more than mere description, I am not too optimistic about the prospects of graduate students getting any marvelous stimulus from contact with him outside the class room. Question was raised specifically about requiring courses in money and banking and in international trade. These involve two of the most complicated

fields with which the economist must deal and adequate courses in them are important. How many of our students will gain a knowledge of these fields merely by relying on library resources? Dr. Alsberg's proposal for courses in what he calls "commodity economics" may serve a very useful purpose in special cases but I am in doubt about their general suitability. Are we training commodity specialists? How many of our teachers are prepared to follow a product from the "cradle to the grave" in this manner? What will keep such courses from being as full of mere description as the courses which are disapproved by Dr. Alsberg? Moreover, students taking several such courses might encounter a serious amount of duplication.

I am sure that those who share with me responsibilities for the administration of departments of agricultural economics would welcome budgets which would permit assigning graduate students to specific projects designed for their development rather than for results in terms of institutional research output. In real life, however, most of us can not treat money allotted for assistants merely as fellowship grants. However, I do not despair because of this. My observation is that the present arrangements by and large do give worthwhile training. The intimate contacts such work provide with staff members serve the very purpose described. Moreover, the day when the research worker hid himself away to pursue research singlehanded is largely a thing of the past. More and more workers are called upon to fit themselves into a program involving others. In addition, I doubt that any real damage is done a young graduate student if he has to do some of the spade work involved in research.

New Year's day is just around the corner. What a relief it would be if all economists, including those with the agricultural flavor, would solemnly resolve to seek to express the complex in as simple language as possible, instead of glorifying the round-about style of expression which prides itself on making the simple appear complex. Let us try to add to our equipment the faculty of using language to transmit ideas rather than to befog minds. Unfortunately, the contagion spreads to some of our graduate students so that they tend to look upon their use of terms which they can not define as being the equivalent of real knowledge.

No one has any cause for disagreement with the suggestion that the best statistical techniques should be employed in our work. Far be it from me to suggest that our profession is free from criticism on this score. However, I am unable to discover any real reason for acquiring any inferiority complex when I compare agricultural economists with workers in other fields. I believe we are doing a reasonably satisfactory job of holding up our end. Statistical techniques have developed so fast that many of us have difficulty in keeping abreast of the times. However, is it not true that a good share of the men who are entering the field are far from being without preparation? In some respects, there may be more reason for being concerned over the danger that ability to employ statistical mechanics has been acquired more rapidly than has the discretion which is so necessary to their appropriate use.

Does Professor Schultz imply by his reference to "techniques" in con-

nection with imperfect and monopolistic competition that these are comparable to statistical techniques, that is specific tools of analysis? If so, I am left behind. The old concepts of free competition which have been modified by the newer ones of imperfect and monopolistic competition after all were backgrounds for analysis rather than specific tools. The curves drawn under the revamped theory approximate more closely the conditions in the world today than do the assumptions of free competition. They, however, are still only assumptions for purposes of illustrations. They are extremely useful to us for understanding the problems we deal with even though they do not supply cut and dried methods of research procedure.

Perhaps this is one reason why greater exposure to economic theory has been avoided by too many agricultural economists. (Incidentally, ample parallels to this condition are found in colleges of commerce.) Too often we share the idea of the undergraduate that studies which do not supply specific answers or applications are not "practical." Economic theory needs to be part of the preparation of the agricultural economist to give him the necessary background for working out his research attack and for analyzing his results.

EARLY HISTORY OF AGRICULTURAL ECONOMICS

HENRY C. TAYLOR

Farm Foundation

A year ago as chairman of the joint session of the American Farm Economic Association and the Agricultural History Society, I made a few remarks with regard to the intimate friendship and the close cooperation between W. J. Spillman, G. F. Warren and myself during the first quarter of the present century, which is well known as the period of rapid development of the subject of Farm Economics. I spoke of my cooperation with Spillman in the farm accounting work; of his strategy in helping me convince the authorities at the University of Wisconsin in the winter of 1907-08 that the time had come for the establishment of a Department of Agricultural Economics in the College of Agriculture at the University of Wisconsin; and of the way in which at my suggestion he took first Dr. O. E. Baker and later Dr. O. C. Stine into the Office of Farm Management, to inaugurate work in agricultural geography and history. This was the beginning of the transplanting of our work along these lines from the University of Wisconsin, where further progress was hampered by lack of funds, to the USDA. The transplanting was completed in 1919 when Dr. L. C. Gray and I went to Washington.

On that occasion in speaking of my friendship and cooperative relations with Warren, I told of the way in which we worked together in 1909 and 1910 to help Dr. Durand, the new director of the Census, plan and tabulate the 1910 Census of Agriculture. I spoke of Warren's part in drawing up plans for the Office of Farm Management and Farm Economics, of which I became Chief in 1919; of his close association and great helpfulness in planning and working out many of the detailed problems involved in the consolidation of the work in Markets, Crop Estimates and Farm Management into the BAE in 1921.

Apparently it was the interest aroused by these statements that led to my being asked to prepare a paper for this joint session on "The Early History of Agricultural Economics in the United States." I accepted the challenge thinking it would be a simple task. But upon turning to the reports to see what had been read before the Farm Economic Association during the last twenty years, I found that in December, 1931, while I was studying the

agriculture of the Hindu villages in the native state of Baroda, India, G. F. Warren read a paper before the Farm Economic Association on "The Origin and Development of Farm Economics in the United States"; E. H. Thomson read a paper on "The Origin and Development of the Office of Farm Management in the U. S. Department of Agriculture" and C. B. Smith read a paper on "The Origin of Farm Economics Extension." With these papers before me, I was sorry I had been so prompt in accepting a place on this program. After casting about to see what I might do that would be supplementary to the papers presented on that occasion, it seemed best for me to give something of the historical setting or, if you please, the atmosphere and the soil in which the growth of farm economics took place.

This leads us to a consideration of the period prior to 1900. The last two decades of the 19th Century had much in common with the third and fourth decades of the 20th Century. Both were periods of falling prices, both were periods of farmer agitation because of the low purchasing power of farm products, and they were both periods when many of those who were discussing the farmer's economic problems were thinking first of all in terms of government action. I shall endeavor, therefore, to give a brief sketch of the situation, of the thought, and of the action relating to agriculture during the '80's and '90's of the last century.

During the latter part of the 19th Century, the extension of the railways throughout the fertile prairies of the North Central States and the improvement of farm machinery led to a vast increase in wheat production. The expansion of the corn area and the utilization of the native grasses resulted in a rapid increase in hog and cattle production. The Eastern markets were flooded with wheat, pork and beef at prices which were embarrassing, not only to the farmers of the new agricultural areas, but also to the farmers of Ohio, New York, Pennsylvania and New England, who, even with their advantageous location with respect to the markets, could not successfully meet the competition from the new agriculture of the West. The depressing influence of this expansion of production was enhanced by a concurrent deflation of the currency; and prices fell to very low levels. Debt paying was practically impossible; mortgage foreclosures were common.

These conditions stimulated thought on the part of farmers' organizations, political economists in the universities, the leaders

in the agricultural colleges and experiment stations, men of letters and social reformers. In the main these groups proceeded independently.

The Farmers' Alliance started a movement in Texas which spread to the whole Middle West. By 1890 this organization had a membership of two million. In the annual meeting of that year, there were delegates from 27 states. While it was the avowed intention to keep out of partisan politics, the Alliance professed belief in the need of legislation to redress wrongs and in the power of organized effort to secure that legislation. Dr. C. W. Macune was the outstanding leader in the development of the Farmers' Alliance. He used his influence to keep the organization out of party politics but at the national convention at St. Louis in 1889, the Alliance adopted a platform calling for government warehouses in which the farmers might deposit their products and receive loans of treasury notes with the stored goods as security. While nominally remaining non-partisan, they agreed to support candidates who favored Alliance demands. This met with great success and at the Alliance Convention in Cincinnati in 1891 a party was launched whose platform demanded free coinage of silver, abolition of national banks, loans on land and real estate, subtreasuries, an income tax, plenty of money, government control of railroads, election of the President, Vice-president and Senators by direct vote, non-ownership of land by foreigners, revenue of state and nation limited to expenses, eight hours' work and universal suffrage.

The Farmers' Alliance, as such, soon disintegrated but the Populus Party carried forward with a view to political action the program which the Alliance had developed. The platform of the Populus Party at its convention in Omaha on July 4, 1892, brought together and summarized most of the demands of organized agriculture.

In 1896, William Jennings Bryan made his brilliant "Cross of Gold" speech at the Democratic Convention, took up the advocacy of the unlimited coinage of silver and gold at the ratio of 16-1, was nominated for the presidency and made an unprecedented campaign of oratory in an effort to gain the leadership of the nation. Bryan was beaten only by the extraordinary endeavors of the financial interests of the country.

At a meeting of the American Economic Association, August 24,

1892, an evening session was devoted to the subject: "The Farmers' Movement in the Northern States." Charles S. Walker, Professor of Economics at the Massachusetts Agricultural College, presented a paper which was discussed by a number of the leading economists of the United States, such as John R. Commons, Edward W. Bemis, Richard T. Ely, and others.

Professor Walker's statement of the problem is as follows:¹

"The farmers' industry has increased the supply of agricultural products beyond the demand, with the consequent fall of price. Here is revealed the efficient cause of his pecuniary condition. The trouble, however, is not that the supply is too great, but that the demand is too little. The other producers have not kept up with the tiller of the soil. . . . The farmers' movement is the awakening of these sturdy citizens from engrossment in manual labor to a sense of their duty, first to themselves and then to society. The movement may be slow, it may do much apparent damage, but it is irresistible, and though it may change the looks of things, in the end its results will prove beneficial. (1) Organizations of farmers are now many and strong, and constantly increasing in numbers, in their field of action, in usefulness and in power. (2) The movement is a widespread and powerful advance along all educational lines. Farmers are a unit in demanding the best education in everything pertaining to the science and art of agriculture, and to the knowledge and practice of manhood. (3) The movement is progressive along the line of cooperation. In time organized and educated farmers will master the difficulties of cooperation so far as it relates to agriculture. (4) Organization, education, cooperation have led to political action, within and without the old parties. From repeated failures farmers are learning how to take care of themselves politically. They press and enforce their demands patiently and persistently, meeting all attacks bravely, believing that wherein their claims may not be for the general good, the conflict with the demands of others will modify and correct them."

The discussion was opened by J. P. Clark of Jamestown, New York, a farmer who had served as secretary of a county Farmers' Grange of which he had been a member for fourteen years. He remarked:²

"It is an encouraging sign when trained minds give expression to the very thoughts I have heard farmers themselves give expression to for fourteen years."

Considerable discussion followed in which questions were raised as to whether or not farmers were more heavily taxed than business men and as to whether or not farmers paid higher freight rates than

¹ Report of the proceedings of the American Economic Association at the fifth annual meeting. Chautauqua, New York, August 23-26, 1892, p. 62, 63.

² *Ibid.*, p. 63.

did the merchants and manufacturers, but especial interest centers about the statements made by Professor John R. Commons who said:³

"I should like to hear some mention made of what seems to me to be the important development of the farmers' movement, namely, the sub-treasury scheme. As far as my knowledge goes, that seems to me to be the most scientific plan put forward by any writer or thinker. As you know, the St. Louis platform provides for the depositing of the farmers' goods in warehouses, and for his receiving loans on short time, which are to be paper money, legal tender. When the farmer is ready to pay his notes he can go and redeem his grain, returning his notes, which are kept by the government in store until the next crop comes. Does not that meet exactly the defect in our currency? At that time of the year when the crops are harvested there is a great demand for money. All the money is in New York City. The farmer must pay high rates of interest because money is actually scarcer in the West than it is in the East. In Canada, where they have a different banking system, I believe it is not so. When this great demand for money arises in the West the effect is to force down the price of the products of the farm just when the farmers have goods to sell, it is claimed 40 per cent. They only get 60 per cent of what they would get at other times of the year."

In response to this statement by Professor Commons, Professor Edward W. Bemis of the University of Chicago said:⁴

"It is shown by statistics that the farmer is in no need of any sub-treasury scheme to enable him to hold back his crops, as the prices of the staple crops average almost if not quite as high immediately after harvest as six or nine months later. But the farmers might get money or capital at lower rates of interest by adopting the principle of the German Raiffeisen."

Again in 1896, a morning session of the American Economic Association was devoted to the farm problem. Professor L. H. Bailey of Cornell University was asked to lead the discussion. Although he was ill and could not be present, he sent seven questions which were presented as a basis for discussion. They related to the rapid growth of the tenant system, mortgage indebtedness, soil exhaustion through one-crop farming, exhaustion of the rural population through the efflux of the young people from the farms, the desirability of rural free delivery of mails, the extension of electric railroads into the rural districts and better educational facilities for farm people. These subjects were discussed by William

³ *Ibid.*, p. 70.

⁴ *Ibid.*, p. 76.

A. Scott of the University of Wisconsin, Emory R. Johnson of the University of Pennsylvania, Edward T. Peters of the USDA, E. R. A. Seligman of Columbia University, William W. Folwell of the University of Minnesota, and by the sociologist, Lester F. Ward of Washington, D. C. With the exception of the statements of Charles S. Walker and John R. Commons at the meeting in 1892, the discussion by the economists of the American Economic Association had little in common with the thought of the leaders of the farmer movement. In general the views of the political economists may be summed up in a statement by Professor Scott, who pointed out the importance of studying the farmer's problem minutely in sample areas, such as a township in New York State, another in Wisconsin, etc., which would give a better basis of understanding the true situation in the various parts of the country. It was clear that he was not ready to advocate any political program of reform, monetary or otherwise. At the meeting in 1896, Prof. Scott said:⁵

"That there is a serious agricultural depression in many parts of the country I have no doubt, but I can see no remedy for it other than a gradual readjustment of agriculture to other industries. The difficulties which at present afflict the farmers in large sections of the country are chiefly due to the fact that we are now passing through a difficult transition period. The rapid extension of the area of cultivation in this and other countries in recent times with severe and unprecedented competition on the world's market for agricultural staples, have brought prices down to a point so low that they do not adequately remunerate the farmer who purchased land at high prices twenty years ago, and who now finds himself burdened with an interest charge and personal expenditure which it is impossible to support. The grievances of such farmers are real, but they are incurable. In order to be prosperous again the farmers of the depressed regions must adjust their production and their methods to the new conditions, and they must acquire such business experience and foresight as will enable them to keep their industry in proper relations to the rapidly changing needs and conditions of nineteenth century industrial life."

While the economists generally seemed to believe in 1896 that the solution of the farm problem did not lie in government action but in suitable adjustments in their farm economy by the farmers themselves, the question may well be raised if the gradual inflation of the currency, during the period immediately following did not influence the prosperity of the farmer during the first two decades of the 20th Century more than did improvements in farm manage-

⁵ American Economic Association, *Economic Studies*, 1897, p. 55.

ment. It should not be overlooked that the cooperative movement was making headway among farmers in the '90's. In Minnesota and Wisconsin, for example, cooperative creameries and cooperative stores were prospering. The Babcock test was developed by the experiment stations as a part of the effort to solve a major problem in marketing butterfat in cooperative and other creameries. In California, cooperation in the marketing of fruit was in progress. In 1899, Edward F. Adams, a leader in that movement, published a noteworthy book entitled, "The Modern Farmer in His Business Relations."

In this period the attention of the U. S. Department of Agriculture, the agricultural colleges and experiment stations and the agricultural press was focused primarily upon physical and biological problems and yet some attention was given to the tenure of farms and to the costs of producing farm products. George K. Holmes of the USDA published a significant article on tenancy in the United States in 1895.⁶ The interest in production costs was in part incidental to the introduction of new crops but it centered primarily upon the relation of costs and prices and was undoubtedly stimulated by the low prices of farm products during the '90's. While little of scientific value either as to methods, findings or analysis of results was achieved during this period, it is significant that thoughts with regard to production costs and their relation to prices were a part of the intellectual and emotional atmosphere of the time.⁷

As the students in the agricultural colleges were stirred to think of these problems and went to the libraries for reading material, one of the most popular books of the time, "Progress and Poverty" by Henry George, was likely to be indicated as a readable book which dealt with the economic problems of the farmer. Henry George was a self-educated newspaper man in California. The concentration of land holdings in California excited his imagination. In 1871, he published "Our Land and Land Policy" and in 1880 he published "Progress and Poverty." This book has nothing to do with the economics of farm management. It has to do with the problem of an equitable distribution of the national income among those who produce it. George studied the classical econo-

⁶ Quarterly Journal of Economics; 10: 34-53.

⁷ For details, see Merrill K. Bennett, Farm cost studies in the United States, Stanford University, 1928, pp. 12-17.

mists, Adam Smith, David Ricardo, Thomas R. Malthus, and John Stuart Mill. He accepted all too literally the Malthusian theory of population and the Ricardian theory of land rent from which he deduced the theory that land was the one important monopoly which, with the growth of population, was able to take increasing rents while the workers became poorer and poorer. His one solution of the problem of the inequitable distribution of income was to guarantee "equal right to the use of land." "Progress and Poverty" contains a discussion of the trend with regard to the size and tenure of farms, mortgage indebtedness, etc. His proposed method of guaranteeing "equal right to the use of land" was the taxing of the value out of land and using the income from this tax to support all public activities. Henry George's writings wielded more influence abroad than in the United States. In Denmark there are 5,000 farms operated under the Henry George system. In England the movement toward land nationalization has gained impetus for many years. The single tax as a panacea was bitterly attacked by American economists. It is only in recent years that some students of agriculture have dared raise the question if, after all, once the land has been settled, some system like that suggested by Henry George might not be better than having every generation of farmers struggle for nearly a lifetime to pay for a farm, particularly if the tax were used entirely for the support of rural institutions instead of being used to support landlords in remote cities. There are of course many sides to this question. If Henry George were living today, he would certainly note that land gives only one of the many opportunities to make a living, that barriers to the entry of occupations are numerous, and that equal right to enter other occupations is now perhaps more urgent than "equal right to the use of land."

Thought was likewise being stimulated by an agricultural depression in Western Europe during the last two decades of the 19th Century. Just as the expansion of agriculture in the Middle West bankrupted the farmers of the eastern part of the United States, so did it throw into confusion the established order of things with regard to farming in Great Britain and Germany. In Great Britain the gradual fall in the prices of farm products resulted in such great distress that in 1893, a Royal Commission was appointed by the Queen to study the extent of the agricultural depression and the conditions both at home and abroad which were responsible for

the unhappy situation. The findings showed that bad seasons, foreign competition and increased costs of production had led to a general depression, that the depression was the worst in the areas where grain production was most largely practiced and less severe in the areas of livestock farming. The report of more than 2,000 pages is full of interest to the agricultural historian because of the description it gives of the agriculture and land tenure of Great Britain in the middle '90's. However, it did not lead to the discovery of any magic that would solve the farm problems. It recommended the adjustment of farm practice to the new conditions created by world competition. This meant a decrease in wheat growing and an increase in dairying and market gardening. It was at this time that the English tenant farmers became very sensitive about clauses in farm leases which bound the farmer to a given system of crop rotation. The farmers insisted upon freedom to adjust their farming operations from year to year with changing conditions. They also demanded adjustments in rents and compensation for unexhausted improvements. These issues led to parliamentary action under the title of the Agricultural Holdings Act, which dealt with the relations of landlords and tenants. The gradual perfecting of this act and of its administration is now looked upon as agricultural statesmanship of the highest order.

English history is rich in materials relating to the adjustment of agriculture to changed economic conditions. The industrial revolution of the 18th Century put into action the economic forces which resulted in a new agriculture adjusted to the demands of the new industrial cities. Foundations for the new agriculture were laid by Jethrow Tull, who emphasized the importance of better tilth; Charles Townsend, who introduced the turnip crop to take the place of the bare fallow and to provide feed for the new livestock industry based upon the new demands for meat; Robert Bakewell, who played the leading role in improving the quality of livestock; and Arthur Young, who, as author and as Secretary of the Board of Agriculture, was the evangelist of the new agriculture. Prior to the introduction of the new agriculture, the system of farming in England was often called Virgilian agriculture due to the fact that the contributions of the Roman writers, Cato, Varro, Columella, Pliny and Virgil, constituted the principal available literature and that the farming practices had much in common with those of ancient Rome.

The record of the transition from the Virgilian to the new agriculture in England gave the background in terms of which the British solved their problems in the last two decades of the 19th Century. They were much aided in this by the excellent surveys of British agriculture initiated by William Marshall and carried through by Arthur Young as Secretary of the Board of Agriculture. These surveys are descriptive of the "Rural Economy" of various counties during the latter part of the 18th Century and the early part of the 19th. Marshall's method was to locate himself in a given county and study minutely the agricultural practices of the time and the changes which were in progress. He spent as much as fifteen months studying a given county on the basis of which he wrote an extensive report on the physical, biological and economic aspects of the agriculture of the county. Marshall gave his books the title of "Rural Economy" which meant agriculture and rural life, but in speaking of the economic problems of the farmer in contradistinction to the broader problems of political economy, he used the phrase "rural economics." It is interesting, also, that while giving his major attention to a detailed study of farm practices and problems, he did not refrain from expressing his views on monetary questions and on their relation to the economic problems of the farmer.⁸

Outstanding writers on agricultural economics in England between the days of William Marshall and the Report of the Royal Commission of 1893 were James Caird (*English Farming in 1850 and 1851*) and R. E. Prothero (*The Pioneers and Progress of English Farming 1888*), who viewed the economic problems of Great Britain from the standpoint of the profits of the individual farmer as well as from the point of view of the landlord and of the nation as a whole. This period can not be passed over without mention of Cobden and the free trade movement which resulted in the repeal of the Corn Laws in 1846 and which, while laying the foundations for the expansion of English industry and commerce, opened the way for the serious impact of foreign competition upon the English farmer in the '80's.

Although there were no chairs of agricultural economics in the English universities at the close of the last century, Great Britain had a rich literature available to the student of this subject and had to her credit notable achievements in economic legislation for the

⁸ William Marshall, *Rural economy of Yorkshire*, 1796; pp. 372-373.

farmer. The Report of the Royal Commission refers to "writers on agricultural economics" (Final Report, page 32) showing that the terminology such as "rural economics" and "agricultural economics" which we have been inclined to look upon as phrases originating in the United States in the present century are old phrases in the literature of English agriculture.

While the agricultural depression in Great Britain was doubtless more serious than that on the Continent, Germany, too, was suffering from falling prices and was looking for causes and for remedies. In 1883 Dr. Max Sering, a young economist, was sent by the German government to the United States and to Canada to study the conditions which had led to the low price of wheat in the German market. In 1887, he published a large volume on the agricultural competition of North America (*Die landwirthschaftliche Konkurrenz Nordamerikas in Gegenwart und Zukunft*) which gave a clear picture to the German reader of what might be expected for many years to come with regard to cheap wheat from the prairies of America. The agrarian policies of Germany in those days relating to resettlement, agricultural credit, protective tariffs and export bounties, are full of interest. The stimulating of agricultural industries, such as beet sugar production, through tariffs and bounties on exports was accepted national policy.

In studying the background of the development of agricultural economics in the United States, our major interest in the Germany of those days is found in the development of our subject in the universities and agricultural colleges. Following the introduction of the new agriculture in England a century and a half ago, a German physician by the name of Albrecht Thaer, of Celle in the Province of Hanover, who was physician to the Hanoverian King of England, commenced introducing the new agriculture on the farm on which he lived. Thaer was a man of great ability and rendered to Germany a service similar to that which Tull, Townsend, Bakewell and Young rendered to England. He published a three-volume work on English Agriculture (1798), followed by a four-volume work on the fundamental principles of agriculture. He became known throughout Germany and was induced by the King of Prussia to establish an agricultural school and experimental farm at Mögeln near Berlin.

While Thaer dealt with the economic problems of the farmers as well as with the physical and biological phases, his major work was

with field crops and livestock. One of his students, Johann Heinrich von Thünen gave particular attention to the economic problems involved in determining which crops should be grown under given circumstances with respect to soil, transportation and markets and to the way in which these economic conditions affected the proper degree of intensity of culture for given areas. Von Thünen has been spoken of as the first of the farm economists in Germany. His most important contribution is found in "Der isolirte Staat" published in 1826.

By the close of the 19th Century every important German university had its professors who taught subjects having to do with the field we now designate as agricultural economics. These professors were divided into two groups, those who approached the field with a background training of political economy and those whose primary training had been in the technical phases of agriculture. For example, in 1900 at the University of Halle, Professor Johannes Conrad gave a course entitled, "Agrarpolitik," historical and descriptive in character. This course gave major attention to the political economy of agriculture and slight attention to farm economics. In the same semester, Julius Kühn, an agronomist, was giving a course in the same lecture room on "Landwirtschaftliche Betriebslehre" which dealt largely with the physical elements of the farm—equipment, labor, etc.,—and their organization in practical farm operations. He touched all too lightly upon the economic aspects of farm management.

This situation at Halle was quite characteristic in the German universities at that time. An exception to the rule was Freiherr von der Goltz of the agricultural college at Bonn. While the political economists and the agronomists were cultivating opposite edges of the same field, von der Goltz occupied the whole field including the history of agriculture, farm accounting, the economics of farm management and the political economy of agriculture. He dealt with those economic problems which the farmer might hope to solve through better management and also with those economic problems beyond the control of the farmer, as such, and which require group or government action if they are to be solved.

The basic points of view in the German thought of that day may be briefly stated as follows: The function of the *Betriebslehre* is not to point the way to maximum production but to state those economic principles of farm management which lead to maximum net

profits from the operation of a farm; the function of the *Agrar-politik* is not to guarantee an existence to everyone who chooses to follow agriculture for a living without regard to the measure of his skill and activity, but rather to make known the way in which, under the existing legal and social order, every individual may have an opportunity equal to his skill and activity, and to help remove the barriers which stand in the way of the development of the agricultural industry as a whole.

American students who went to Germany for training in agricultural economics at the turn of the century and who took the time to make a geographical and historical study of German agriculture in its world setting and who read von Thünen's "Der isolirte Staat" and Wilhelm Roscher's "Nationalökonomik des Ackerbaues" and who had the good fortune to come under the influence of Max Sering and Freiherr von der Goltz, found many of the basic principles which have been followed in the development of agricultural economics in the United States.

With this setting at home and abroad, one effort to develop agricultural economics in an agricultural college in the United States in the 19th Century deserves mention. In 1892, Thomas F. Hunt commenced giving a course in rural economics at the Ohio State University. His work was divided into two parts. The background of his course was the study of historical and comparative agriculture including Egyptian, Grecian, Roman, British and American agriculture, followed by work on the economics of farm management. While it was necessary for Hunt to give major attention to courses in agronomy and to serving as Dean and Director in an agricultural college, he always maintained a keen interest in rural economics and deserves the title of the outstanding pioneer, the Daniel Boone, in the field of agricultural economics in the United States. Dean Thomas F. Hunt was an influential member of the American Association of Agricultural Colleges and Experiment Stations. He was for many years the most dynamic person on the Committee on Courses of Study. It was doubtless he who put Rural Economics in the list of courses recommended in 1896. The outline of a course in rural economics adopted in 1900 was evidently based on the course Hunt had been developing since 1892. It was similar to the outline of Hunt's book printed in 1899 entitled "Lectures on History of Agriculture and Rural Economics" but was more elaborate. Marketing was included in addition to agri-

cultural history, farm accounting and farm management and mention was made also of land tenure, labor systems and social and financial condition of farmers.

It was very fortunate that Dean Hunt had pioneered the way in agricultural economics prior to 1900. He appreciated the contributions to be made in this new field by the economist, the agronomist, and horticulturist, the statistician and the mathematician. He realized that while one must be an agriculturist he must also be an economist to work successfully in this field. His strategic position in the American Association of Agricultural Colleges and Experiment Stations gave him leadership among the deans and directors, with the outcome that Thomas F. Hunt was the dominant influence in bringing it to pass that agricultural economics in the United States has become a unified subject.

AGRICULTURE IN THE UNITED STATES, 1839 AND 1939

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A century ago we had practically no agriculture west of the Mississippi River, except in Louisiana and Missouri. Michigan and Arkansas had been recently admitted to statehood. Iowa, Wisconsin, and Florida were still territories, and Texas was a republic. In the far west, Captain John Sutter, under a Mexican land grant, had just begun to build his little empire and to develop agriculture along the Sacramento River.

The United States was predominantly an agricultural country in 1839, whereas today our economy is largely urban and industrial. In 1840 nearly four-fifths of our gainfully occupied workers were in agriculture; today nearly four-fifths are in non-agricultural occupations.

The growth of our urban population has created a vast market for the products of commercial agriculture. In the last hundred years our population has increased from 17 million to over 130 million people. Today we have about 1,000 cities with over 10,000 population compared with only 38 in 1840.

A hundred years ago pioneer farmers were pouring into the Middle West from Europe and the older agricultural regions east of the Alleghenies. As yet nearly all of the western settlements had been along the rivers and in the wooded areas. Early settlers naturally preferred to be near the rivers which afforded water and a means of transportation. The wooded areas, although difficult to clear, furnished building materials, fuel, and protection from prairie winds and dreaded cyclones. Other reasons for avoiding the prairie were the heavy soils that would not scour with wooden and cast-iron plows, the difficulty of driving over prairie-mud roads, and the need for deep wells. Prairie farming in the mid-west had scarcely begun before 1839, but a rapid development occurred in the next decade after the Pre-emption Act of 1841, the coming of railroads, and the development of steel plows and harvesting machinery.

There was some well-developed crop production and stock breeding in southwestern Ohio, the Blue Grass region of Kentucky, and the Nashville basin. With these exceptions, farming west of the

Alleghenies was decidedly of a pioneer type. Capital and labor were scarce, whereas land was plentiful. The labor shortage was particularly acute at harvest time and considerable grain was lost owing to the inability to harvest in time.

By 1840, considerably quantities of flour and wheat and some corn, lard, butter, cheese, and wool were shipped east by the Erie Canal, but the driving of livestock to eastern markets was becoming of less importance owing to the development of meat packing in Cincinnati—the “porkopolis” of the West.¹ Apparently the Erie Canal at that time was more important as a highway of Western travel for pioneer settlers than as an outlet for farm products of the West.

Most of the traffic from the Ohio River Valley was one way—down the rivers toward New Orleans—before the coming of trunk line railroads. New Orleans had become a great market for livestock products, flour, corn, and, to a lesser extent, for tobacco, whiskey, and potatoes.²

New England agriculture a century ago was in the midst of readjusting from a one-crop system to a new, specialized and diversified agriculture to supply the growing urban centers. Beef and wool production in this region reached their peak about 1839, whereas the production of hogs, hops, and broom corn already had declined sharply. Areas with large surpluses of pork and lard a few years earlier were now importing these products from the west. Farmers near the growing cities were turning to the production of market milk, fruits and vegetables. Hay was the leading crop and one that often found a ready market for city horses. The use of lime and gypsum as fertilizer had become fairly common. Crop rotations were generally practiced and summer fallow had become largely a thing of the past.

Although major readjustments were in progress in New England, the shift from self-sufficient to commercial agriculture was slow and difficult. Farmers lacked capital and business experience in dealing with buyers, and farm wage rates were relatively high. In some communities it was almost sacrilegious to buy what could be produced at home and it was felt that a farmer who sold some things and bought others had to pay a commission both ways. Such out-

¹ P. W. Bidwell and J. I. Falconer, *History of agriculture in the northern United States, 1620-1860*. Washington, 1925, pp. 178 and 182.

² Report of internal commerce of United States. United States Bureau of Statistics, Department of the Treasury, 1887, pp. 195-202.

standing agricultural leaders as Henry Colman of Massachusetts advised farmers to look to their farm for the means of supplying all possible needs.³ Some New England States revived the old policy of paying bounties on the production of certain crops. During the general recession in business and prices in the late 1830's, bounties were paid on the production of wheat, corn, and raw silk.⁴ These futile attempts to fight western competition apparently were abandoned by 1840.

The storekeeper was practically the sole source of short-time and intermediate credit. The high cost of such credit was represented by the excess of credit prices over cash prices for merchandise. The country merchant was also the chief buyer of farm products. Owing to small-lot purchases, and little or no attempt at inspection or grading, the cost of marketing was necessarily high and there was little inducement to improve the quality of farm products. After 1830, wool buyers were operating throughout the countryside whereas a few years earlier most farmers brought their wool long distances and sold it direct to the factories.⁵

The making of textiles had been largely transferred from the home to the factory by 1840. The decline of household industry had far-reaching effects on the mores of self-sufficiency and on the family as an economic and social unit. Some contemporaries wondered what the housewife would do with her leisure time. Henry Colman regretted "the idleness and frivolities of pride and luxury" that were replacing "the healthy exercise of domestic labor and household cares . . ."⁶

Agricultural production in eastern and central New York was much like that of New England. Western New York, along with western Pennsylvania and Ohio, was the principal wheat-growing area at that time. Most of the farm income in this area was derived from wheat, sheep and cattle. In New York the number of neat cattle and the production of small grains and hay had leveled off by 1840 and in the following decade corn production increased, whereas potato production declined sharply.⁷ The limited develop-

³ Henry Colman, Second report on the agriculture of Massachusetts, County of Berkshire, 1838. Boston, 1839, pp. 137-138.

⁴ Bidwell and Falconer, History of agriculture in the northern United States, pp. 193 and 324.

⁵ Bidwell and Falconer, History of agriculture in the northern United States, p. 249.

⁶ Henry Colman, Second report on the agriculture of Massachusetts, p. 138.

⁷ Census for the State of New York, 1855. Albany, 1857, p. lii.

ment of midwestern agriculture is illustrated strikingly by the fact that the total area of improved farm land in New York was nearly equal to that in Indiana, Illinois, Michigan, Wisconsin, and Iowa combined.

The South was the leading agricultural region in 1839. It produced practically all the cotton, rice, sugar, sweet potatoes, and most of the tobacco, hemp and corn. Tennessee and Kentucky were the leading corn and hog states at that time. The border states of the South were among the largest producers of livestock, including hogs, beef cattle, sheep, horses and mules.

The one-crop system characterized the production of such crops as cotton, tobacco, rice and sugar. The prices and income for such crops sometimes varied widely from year to year. A large cash income in a good year often led to over-expansion and extravagant living, followed by debts and bankruptcy in periods of low income.

Cotton growing had undergone a tremendous westward expansion during the speculative period of the 1830's. Mississippi and Louisiana were first and third in cotton production in 1839 with Georgia in second place. Cotton and tobacco production had moved westward from the worn-out lands in the Tidewater and Piedmont sections. In 1839 agricultural production in Virginia was but little greater than in the pre-Revolutionary period, whereas production in Maryland was actually less.⁸ Agriculture in the eastern part of Maryland, Virginia, and North Carolina was indeed in a difficult situation a century ago. Farmers in this area were faced with soil depletion, low prices of farm products, high prices of slaves, and a recent sharp deflation in land values. According to Percy Bidwell, "Almost all farms east of the Alleghenies were probably in the stage of diminishing returns by 1840."⁹

Many large estates in the Tidewater and Piedmont sections became bankrupt. Even with a write-down in values, they were no longer self-supporting. Thus a great and rather abrupt leveling process was taking place. As the upper class became impoverished it turned to its intangible heritage as a defense of its social position. Later generations have relied heavily—and with some success—on establishing a mark of social distinction on the basis of their antiquity. Some of the southern plantation-homes have been

⁸ L. C. Gray, *History of agriculture in the southern United States to 1860*. Carnegie Institution, 1933. 2: 757.

⁹ Bidwell and Falconer, *History of agriculture in the northern United States*, p. 204.

purchased by wealthy "outsiders" from the North. The crumbled ruins of others are gravestones of a social order of pre-Civil War days.

The accounts of mass migration of farmers and particularly of slave laborers from east to west at that time sound somewhat like the migration from the Dust Bowl to California a century later. The western demand for labor boosted slave prices above what farmers in the east could readily pay.

The loss of soil fertility was already recognized as a serious problem in some eastern areas a century ago. Then—and for a long time thereafter—this problem was left for the individual to struggle with. Horizontal plowing, hillside ditching, and terracing were—and still are—suggested remedies for erosion. Edmund Ruffin, of Virginia, was urging farmers to make use of the extensive marl deposits to increase yields on the poor upland soils. The use of marl helped for a time by postponing the effect of depleted soil fertility. The era of commercial fertilizers and the widespread use of guano in Maryland and Virginia did not begin until a few years later.

A major difference today is that we have so-called "action programs" whereby the Government aids in conservation. We have become increasingly concerned with the broad social aspects of conservation as a national policy. This policy is no longer limited to natural resources but extends to human problems as well.

Northern Virginia had become an important general farming area by 1840, somewhat like that in southeastern Pennsylvania. Tobacco growing here had been practically abandoned and soil fertility had been improved by fertilizers and clover crops. The fattening of feeder cattle was a thriving enterprise here, as in much of the Piedmont, and Shenandoah, and the valleys of eastern Tennessee.

The Shenandoah Valley had long been referred to as the "bread basket" of the nation. It was here that the pressure of labor for grain harvesting recently had led to the invention of, and early experimentation with, the reaper by Cyrus McCormick.

The depression of 1837-42 has been described as "... the most extended period of severe misfortune not founded on political difficulties which this country suffered prior to the Civil War."¹⁰

¹⁰ Statistical background of the crisis period, 1837-42, by Arthur H. Cole, in the *Rev. Econ. Stat.*, November, 1928.

Following the panic of 1836-37, a secondary financial crisis occurred in 1839. In that year 759 banks closed their doors and interest rates in some cases rose to 30 per cent.

The speculative mania of the 1830's is well illustrated by several agricultural crazes. One of these was the wild speculation in mulberry trees and silk production. It was predicted that "The silk culture is destined to become a great source of wealth to New England . . ." ¹¹ Mulberry trees were bought and sold for future delivery, short selling developed, and even fish roe was sold for silkworm eggs until the speculation collapsed in the fall of 1839. ¹² Other crazes at this time centered around broom corn, Chinese tree corn, Rohan potatoes, shorthorn cattle, and even camels. The most widespread livestock craze related to Berkshire hogs. The "Berkshire fever" overplayed the merits of the poor hog and left him with a strong prejudice to overcome. ¹³

Some of the most intensive agriculture was practiced in South Carolina where rice and Sea Island cotton were important export crops. Sugar and molasses were produced chiefly in Louisiana on large plantations that were really farm and factory combined. Sugar production in this country has been mothered by the tariff. An unsuccessful attempt was made about a century ago to wean the suckling child by lowering the tariff. Now, this overgrown "sugar baby," like a diabetic, requires expensive and perpetual care.

Tobacco production was centered in Virginia and the states bordering thereon. However, Missouri ranked sixth in tobacco production with over 9 million pounds in 1839. Owing to the short crop, tobacco was one of the few farm products for which prices were high in 1839. ¹⁴

The phenomenal improvement in transportation in the last hundred years has brought about vast changes in agriculture. It may be said that 1839 marks the end of the canal-construction era and the beginning of the railroad era. At that time a net-work of post roads connected the principal cities east of the Mississippi

¹¹ Henry Colman, *First report on the agriculture of Massachusetts, County of Essex*, 1837. Boston, 1838, p. 72.

¹² L. C. Gray, *History of agriculture in the southern United States*, pp. 828-29 and 847.

¹³ A. H. Cole, *Agricultural crazes—A neglected chapter in American economic history*. *American Econ. Rev.*, December, 1926, pp. 622-39.

¹⁴ Arthur G. Peterson, *Historical study of prices received by producers of farm products in Virginia, 1801-1927*, p. 101.

River and the Cumberland Road had been completed from Baltimore to somewhere in Illinois. In 1839 it took 17 days to travel by steamboat from New York City to Liverpool, England.¹⁵ Today this trip takes only 5 days by boat and 30 hours by plane. An even greater reduction has been made since 1839 in the time required to travel from New York to California.

The increase in availability and speed of communications, coupled with refrigeration, has reduced transportation costs and greatly expanded the market for agricultural products. This, in turn, has permitted specialization in agricultural production and a more orderly marketing in response to changes in demand and supply conditions.

A century ago the use of machinery began to take the place of man power in farm operations in a large way. The agrarian revolution was in evidence. Cast iron plows had displaced the wooden moldboard plows. John Deere produced his first steel plow in 1837, from a saw blade. At planting time, the broadcasting of grain by hand had scarcely begun to give way to the use of grain drills. Although grain was generally reaped with the cradle, the "song of the reaper" was beginning to awaken agriculture from its centuries of sleep. Introduction of the stationary thresher and fanning mill in the 1830's reduced the time required for threshing, winnowing, gathering, and sacking an acre of wheat from about 26 hours in 1830 to 4 hours in 1840. Threshing with the flail, although it could be done in slack labor periods, was "one of the slowest, most laborious, expensive, and wasteful operations performed on the farm."¹⁶

Under the hand methods employed in 1830, it required 64 hours of labor to produce an acre of wheat, whereas with the machine methods of a century later it required only a little over 2 hours.¹⁷ However, the reduction in total labor expended is less by the amount of labor required to produce the farm machinery.

Harrows, rollers, and wooden horse-rakes were in common use by 1839. Some mowers and factory cultivators had been introduced but nearly all hay cutting was done with the scythe, corn was planted by hand and cultivated with a hoe or a crude one-horse cultivator.

¹⁵ Commercial and financial chronicle (Centennial edition). New York, November 4, 1939, p. 2764.

¹⁶ Centennial source material, McCormick Reaper Centennial, 1931. Mimeographed report, International Harvester Company, p. 22.

¹⁷ Centennial source material, McCormick Reaper Centennial, 1931, p. 37.

In the South, the high price of slave labor encouraged the use of farm machinery. Some of the simpler agricultural implements were being manufactured in Pittsburgh and other places and sold at much lower prices than a decade earlier. However, nearly all farm machinery was still the product of the farm or local blacksmith shop.¹⁸ The consequent lack of standardization resulted in a slow adoption of improved machinery.

Turning now to the situation in recent years, we find quite a different picture. Motor vehicles and other farm machinery represent a large investment in agriculture today. Power machinery has been displacing many of the horse-drawn machines in the last 25 years. Recently we have gotten rubber tires on many farm machines, a century after Charles Goodyear discovered his process for vulcanizing rubber. The use of rubber tires on farm machinery, the sale of small tractors and combines, and the use of airplanes in farm operations are outstanding developments in recent years. The planting of some crops and spraying of insecticides by planes has brought a speed and effectiveness in these operations that was undreamed of a century ago.

On this centennial of our first agricultural census, it seems appropriate to review briefly the developments in the field of agricultural statistics. Many of the agricultural programs of recent years could not have been undertaken had it not been for the wealth of available statistics relating to agriculture. A hundred years ago about the only current statistics relating to agriculture were those on international trade, and the local market prices quoted in newspapers. Some newspapers recently had begun to report local receipts or sales of livestock and some other farm products. Sporadic attempts had been made by agricultural societies and agricultural journals to collect statistics on acreage, yield and production. The three New York States censuses of 1835 and earlier contained agricultural statistics. The first agricultural survey of a comprehensive nature was authorized by the Massachusetts legislature in April 1837 and was conducted by Henry Colman between 1837 and 1840. Several states had made geological surveys before 1839.

The sometimes unreliable news brought by a ship captain regarding crop conditions in Europe often created a panic in our

¹⁸ Bidwell and Falconer, *History of agriculture in the northern United States*, p. 281, and L. C. Gray, *History of agriculture in the southern United States*, p. 792.

eastern grain markets.¹⁹ The lack of current and reliable price information placed producers in a weak bargaining position.

In 1835, Henry L. Ellsworth was appointed Commissioner of Patents. He was particularly interested in agriculture and began at once to aid in the collection and dissemination of plants and seeds, especially those which were sent in by our consuls and naval officers. He felt that the government had rendered substantial aid to commerce and manufactures, but for agriculture, "the parent of both" and the ultimate dependence of the nation, much remained to be done.²⁰

Ellsworth urged Congress to provide for the collection of statistics on agriculture and expressed the opinion that information of this kind would tend to prevent "unjust speculations of the monopolists."

President Van Buren, in December 1838, recommended to the Congress that it extend the scope of the Sixth Census. On March 3, 1839, the same day that the bill providing for the Sixth Census was passed, a bill providing among other things for an appropriation of \$1,000 for the collection of agricultural statistics and for other agricultural purposes was passed.

Our abundant agricultural statistics, up-to-the-minute radio reports on market news, and agricultural outlook information are in marked contrast to the situation a century ago. The 1840 and 1940 census schedules relating to agriculture are about as unlike as a flea and an elephant.

The geographic distribution of agricultural production in 1839 reveals some striking contrasts with the situation today. What is now the District of Columbia²¹ produced more rye in 1839 than "Wiskonsin," more hay than Mississippi, more tobacco than South Carolina and "Wiskonsin" combined, and three times as much orchard and market garden produce as Florida. The United States Department of Agriculture, it seems, has grown so big that it has pushed farming out of the city of Washington and pursued it into every nook and corner of the land!

Many things that profoundly affect farming and rural life today were not present a century ago. Some of these have tended to remove the isolation of farm life. In 1839 we did not have a department of agriculture, nor a single agricultural college; we did not

¹⁹ Arthur G. Peterson, *Early nineteenth century flour prices*, Northwestern Miller, July 20, 1932, p. 197 ff.

²⁰ Report of the Commission of Patents for 1837, dated January 17, 1838.

²¹ Exclusive of what is now Arlington County, Virginia.

have the automobile, tractor, cream separator, telephone, electricity, motion picture theatre and radio; nor rural free delivery of mail, the parcel post service and the big mail-order houses; we did not have Federal aid to agriculture, such as mortgage financing, crop and livestock loans, benefit and conservation payments. Farmers had to get along as best they could, without the advice and guidance of Federal and State experts. Imagine our farmers getting along without all these things today.

Some state aid to agriculture was provided a century ago, such as small appropriations for agricultural societies, an occasional survey, and bounties on the production of a few crops. Federal aid to agriculture then—if we may call it such—was indirect, such as a policy to encourage land settlement, a tariff policy that may have helped some farmers, aid in building roads, canals and railways, and the encouragement given to the introduction of plants and breeding stock.

A century ago, agricultural societies and journalists were advising farmers to improve their selection and breeding of crops and livestock, to use fertilizer, better cropping systems and more labor-saving machinery. But the farmer was left in need of reliable information as to how he should do these things. The application of botany, biology, and chemistry to agriculture had scarcely begun. The appearance in 1841 of the American edition of "Chemistry in its Application to Agriculture and Physiology," by Liebig, was in a sense the beginning of agricultural chemistry in this country. Thereafter, chemical agriculture was a center of discussion in the East, whereas agricultural machinery and the railroads attracted most attention in the West.

In stressing the need of information for farmers, Charles T. Jackson, geological surveyor of Maine and Massachusetts, wrote in 1838 as follows:

"If our farmers knew more respecting the chemical nature and methods of amending their soils then we might indeed look to our own fields for bread, but alas! there is a great deal of empiricism in agriculture, and it is no wonder that farmers distrust what they call 'book learning' when they obtain so very little practical information from it.

"Is it not a shameful fact, that the French farmers are so much our superiors that they can afford to send here for manure, and then raise wheat, beans, corn, and other vegetables cheap enough to supply a large share to our market?"²²

²² Letter to the Rev. Henry Colman, dated Jan. 15, 1838, printed in the First report on the agriculture of Massachusetts. Boston, 1838, p. 131.

The lack of scientific knowledge at that time is evidenced by the status of veterinary medicine. To obtain white veal or to restore a calf's appetite, it was advocated that the little animal be bled in the neck every third day, in clear weather, and as near the middle of the day as possible.²³

Along with the many developments in agriculture, there have been significant changes in views and emphasis; from increasing to regulating production, from settlement to resettlement, from exploitation to conservation, from self-sufficiency to commercial agriculture, from self-reliance to widespread dependence on Government aid; in short, from uncoordinated individual activity to group action.

Today, farmers, with the aid of their Government, exercise sufficient control over production and marketing to influence prices. Group action has brought about other important developments that were beyond the scope of farmers working individually.

Although there has been a marked relative decline in our farming population, the influence of farmers in Government affairs apparently has not declined proportionately. Farmers have become more articulate and politically are a powerful minority. Moreover, the large investments in agriculture by Government, banks, insurance companies, and private mortgagees have aided agriculture from a political standpoint.

The production per worker in agriculture in the United States has increased about two and one-half fold during the past century.²⁴ The widespread use of machinery has reduced labor requirements and lessened the drudgery of farm work. Farm laborers have benefited through higher wage rates, more leisure, and wider social contacts. The opportunity to listen to a radio while driving a tractor provides pleasure and education along with work. On the other hand, the increased capital requirements in agriculture have lessened the chance for a farm laborer to find employment and to rise to a position of farm ownership.

A fair share of the national income for agriculture is an appealing and admittedly desirable objective. Historically, however, we do not have sufficient information to determine what constitutes a fair share. About one-third of the national income produced in

²³ Southern Agriculturalist, 8: 17; L. C. Gray, *History of agriculture in the southern United States*, p. 845.

²⁴ Baker, O. E., and others. *Agriculture in modern life*, 1939, p. 25.

1839 has been classified as going to agriculture compared with approximately one-eighth at present.²⁸ Nonagricultural industries have increased in number and size. Moreover, many articles such as farm machinery, building materials, clothing, bread, and other items for family living that were formerly made on the farm are now made elsewhere and purchased by farmers. Therefore, it does not follow that agriculture is relatively worse off because it now receives a smaller share of the national income. Nor can we say that farmers are more or less happy now than a century ago. However, it does seem safe to say that from the material aspect farmers have lost few things that they would care to retain and have gained a great many things that their grandfathers did not have. If an equal number of farmers of today and a century ago could have their choice, probably few would prefer the old order rather than the new. If this be true, can we not say that farmers are appreciably better off now than they were a hundred years ago? Some of my friends contend that farmers had greater security in the good old days than they have today, but those who have experienced the struggle and hazard of pioneer life disagree with this contention.

What about the future? We have noted now different agricultural conditions were a century ago from what they are today. While such a contrast is interesting, its chief value is the extent to which it may help us to foresee what lies ahead. In conclusion, therefore, let me give you a few guesses as to some of the changes that may occur before another century rolls around.

The immediate outlook is not encouraging in this country and less so in the world at large. But if we raise our sight to the more dim and distant future, it is possible, if we wish, to take a more optimistic view. Some say that opportunity for investment is becoming less and less. It is true that geographic expansion is limited and population growth is leveling off. On the other hand, we have a vast amount of capital seeking investment and unlimited wants eager to be satisfied. The world of tomorrow will call for a rebuilding of our transportation system, our cities, factories, and farm homes. All these should create new employment and a better demand for farm products.

In recent years, there has been a stampede toward more government intervention in agriculture. The pendulum may reverse itself

²⁸ R. F. Martin, *National income in the United States, 1799-1938*, National Industrial Conference Board, 1939, pp. 60-61.

temporarily in this respect, but the long-time trend is likely to be toward more government supervision, regulation and control. We may expect more legislation to encourage operator-ownership of farms. Government financing of agriculture, taxation policies, and State exemption laws will doubtless be directed toward this goal.

The Farm Security Administration is helping to provide medical services for thousands of farm people. A farmer with good health and a happy family life is a much better credit risk than one who lacks these. It seems highly probable that there will be more government aid to provide hospitals, medical care, and other social security benefits for agricultural populations.

A greater degree of self-sufficiency seems likely in small scale farming. However, diversified subsistence farmers and seasonal farm laborers probably will need some government subsidy to provide necessary industrial goods. Unless distribution costs are reduced, high income- and sales-taxes may result in more self-sufficiency among part-time farmers. Moreover, low interest rates, lack of confidence in stocks and bonds, and fear of inflation may again make a piece of land one of the most attractive investments.

The exemption of enterprises with few employees from the burden of social security taxes may become a decided stimulus to small industries. The expansion of rural electrification may tend to diversify small scale industries and may even bring some industry back from the factory to the home. Rural handicrafts will afford employment and avocations for more people, particularly the aged and retired, who are becoming an increasing proportion of the population.

Specialization and large capital requirements will continue to be driving forces in commercial agriculture. A high ratio of tenancy to farm ownership will persist. More attention will be given to new uses for farm products and the production of high quality products; also to standardization and grading. We may expect more emphasis on conservation, not only of the soil, but of agriculture as a whole. If we may judge from recent trends here and in Europe, agriculture is going to require a rather large part of the government budget.

Lastly, there is likely to be more interest in research and teaching in the field of agricultural history and some of us may live to see a national museum of agriculture in the United States.

DISCUSSION BY H. C. M. CASE

University of Illinois

The charge that "farm management research . . . seems to have reached an impasse"¹ certainly prompts a critical analysis of farm management research objectives, methods, and accomplishments. Such an analysis might take the direction of theoretical reasoning or of a more practical consideration of specific economic problems faced by the farmer. Certainly land grant institutions should give due consideration to the latter since they were established to help farmers solve agricultural problems. An adequate approach to such analysis is difficult without a complete review of the farm management field similar to that set forth by Johnson,² but supplemented by more nearly complete appraisal of accomplishments.

Only within the past quarter of a century has farm management in most states become systematized into a field of research. During this period, the research in a particular institution frequently has taken a direction representing personal views of individuals whose experience and training was indeed varied. An examination however of farm management data and accomplishments shows that pioneers in the agricultural economics field have made noteworthy contributions. The full value of much of this data is yet to be realized in studying agriculture through a longer space of time, and through its application or orientation to current problems such as those of action agencies. It behooves those of us who attempt serious criticism of farm management research on the one hand, to check our own understanding of farm problems as the farmer meets them from day to day, and on the other to consider the adaptation of current farm management research and new developments in research essential to action programs on the other. The two needs are perhaps significantly different.

There is reasonable doubt that "the theory of the firm" approach as set forth by Hicks,³ will meet the farmer's practical everyday problems, as no means has been devised to gather and keep currently analyzed data of changing economic phenomena in sufficient volume and detail to arrive at the theoretical analysis desired. The farm management worker, however, may well broaden his mental horizon by becoming acquainted with the dynamic theory of the firm and by catching whatever practical application it may have to the dynamic aspects of farm management. A careful study of the theory by one in the field of agricultural economics, with the hope of finding a possible means toward a new solution of some of the farmer's economic problems, may bring one to agree with Haley.⁴ In his review of Hick's book "Value and Capital" for the American Economic Review, Haley concludes with the statement, "More generally

¹ T. W. Schultz, Theory of the firm and farm management research. *JOUR. OF FARM ECON.*, 21: 570-586. 1939.

² S. E. Johnson, Adapting farm management research to new opportunities, *JOUR. OF FARM ECON.*, 21: 98-106. 1939.

³ J. R. Hicks, Value and capital.

⁴ B. F. Haley, Book review of, Value and capital, an inquiry into some fundamental principles of economic theory by J. R. Hicks, *The American Econ. Rev.*, p. 557, September, 1939.

the rigorous avoidance of discussion of the practical applicability of the principles developed, except for an occasional lapse, not only makes the work excessively tiresome for the reader, but also causes many, frequently, to raise the question 'How much of this is good for anything?'

Has farm management research reached an impasse? What are to be our criteria of failure? Are we going to examine the results of farmers who have sought to use farm management research findings? Are we going to criticize farm management research because research workers failed many years ago to anticipate all of the research needs of action programs? Is it possible that farm management research has had too many changes in emphasis in some areas to provide answers requiring a time series answer? Are we giving so much emphasis to action programs that we have forgotten the farmer? Finally, will not further continuous study of the farmer put us in a better position to answer future problems which cannot be anticipated? Perhaps, those who pioneered the field of farm management had visions which many of the more recent entrants into the field of study have not yet grasped. Hence, if we are to approach our problems most constructively, this is a good time to review rather carefully methods of study and research results in order that we may retain from the old, those results and methods which will contribute to a better and more unified program for the future. While bending every effort to work out research refinements, great care must be exercised so that data are not too mathematically complex to be readily comprehended, and as a result will not be used by farmers. There is considerable evidence that farm management research instead of reaching an impasse has supplied the basis for the strongest current interest on the part of farmers which has ever developed in intelligent farm planning.

Let us turn back to the first report of the American Farm Management Association and review certain statements made at the organization meeting held in July, 1910. It is significant that the committee reporting on the scope and cleavage of the field of farm management stated, "The general study of farm practice is an essential prerequisite to the study of farm management questions. . . . Farm management deals with rural problems from the individual or private point of view."⁵ This report further emphasizes the necessity of farm management investigators' working in closest cooperation with agronomists, animal husbandmen, horticulturists, and other investigators whose business relates directly to the farm. There is some evidence that many research workers are not giving close enough attention to the study of farm practice and the desirability of a close working relationship between research workers in agricultural economics and workers in other agricultural fields.

Dr. H. C. Taylor, some years ago, while administering farm management work in the United States Department of Agriculture, placed special emphasis upon the relationship of farm management to other subject-matter lines. Instead of setting up farm management as something entirely apart from the work in agronomy, animal husbandry, and other subject-

⁵ Report of first annual meeting, American Farm Management Association, July, 1910.

matter fields, he pointed out that farm management was essentially the "economics of farm management," while the various other subject-matter departments were concerned with technological problems pertaining to farm management. A farmer in his day-to-day problems does not differentiate between the fields of study represented in his local experiment station. He needs the answer to a specific problem which is uppermost in his mind that day, regardless of whether it may be answered by the agricultural economist or by the technician in the field of agronomy, animal husbandry, or some other subject-matter field, but he wants it to be economically sound.

Relative to early types of research efforts in the field of farm management, I am inclined to think that farm economists have retained as their background of thinking more of the facts determined by type-of-farming analyses, farm business survey studies, detailed cost studies, enterprise cost studies, and other phases of farm management research than the novice is apt to recognize. Such studies have become part of the text and equipment of the classroom and have served a purpose in training students to think along constructive lines. They have approached the problem from the individual point of view and have provided much of the economics of farm management; for example, for the future and even for the present some of these studies give the best answers available as to the results of farmers from following specific action programs.

I would not severely criticize type-of-farming studies for what they have failed to contribute to farm management. "Just what did we expect such studies to contribute?" We expected them to delineate areas within which somewhat common characteristics existed and to set forth the natural factors and the dynamic economic forces which have been responsible for the development of the existing type-of-farming areas. Johnson indicated rather clearly that the pertinent farm management problems vary from region to region.² Such studies, when well done, indicate the major forces that may have a continuing influence on the agriculture of the region. A thorough knowledge of such forces places the farm management investigator in a position to visualize more clearly the effects of the impact of current economic forces upon the type of farming in that area in the future. A type-of-farming analysis which accomplishes these purposes is especially helpful as a preliminary to the study of specific farm organization and operation data pertaining to such an area.

It is hardly possible to find a research pattern which can be used with equal success as a basis for farm management research in all sections of the country. Historically, some areas of the country reached maturity many years ago and a deterioration of resources has set in. Others have recently come to maturity and are just now facing some of the problems which the farmer must solve in order to conserve his resources. Other areas, perhaps, are not fully developed with reference to drainage and other corrective measures which will help increase the productivity of the land. Some areas have been misjudged by farmers and the type of farming which has been established never was suited to the physical conditions existing in those areas.

The interest which may have waned in type-of-farming studies in recent years is likely to be revived when the characteristics of those areas have changed sufficiently to justify a revision of the facts set forth as they were 10 or 20 years earlier. The lapse of time between successive studies should be of value in interpreting the economic forces affecting the agriculture of the area. While farm management has been criticized for not having ready-made answers for action programs, perhaps it is pertinent to inquire whether action programs have been broken down sufficiently to fit recognized type-of-farming areas.

Farm financial and production records, which play such a prominent part in many state extension programs, were not mentioned earlier in this paper among the specific types of research which have provided much of the economics of farm management. A financial record of the farm business for the year serves its purpose in research as well as do some of the other types of research when large numbers of records are collected for research use. It seems, however, that it serves its largest function as a vehicle for carrying to the individual farmer the economic facts which are pertinent to the most successful organization and operation of his individual farm unit. It has shown the farmer the results accomplished by individual farmers following certain practices and thus serves as a means of bringing better practices within the view of farmers who need a local demonstration. Less complete data such as that gathered through the auspices of the local AAA offices, will lack much of providing specific information which many farmers will want as a basis for redirecting their efforts. For the farmer, we are apt to find no substitute for expressing the value of farm practices in monetary and physical terms secured from his own and his neighbors' farm account records. As suggested earlier such records from identical farms over successive years have an ever-increasing research value for either the individual farmer or in the determination of broader agricultural action programs. Continuous financial and production records, hundreds of which are now available in some states, provide as adequate an analysis of differences between cooperating and non-cooperating AAA farms as the writer is able to suggest. In addition to information available from AAA records, farm financial records show the effect of change in crop patterns on crop yields, in amount of livestock produced, in costs per acre for operation, and finally in the net profits from the farm as a unit. It is apparent that farmers are becoming more exacting in demanding this type of information.

In calling attention to the wide variation from area to area in the problems as the farmer meets them, we need to recognize not only the differences in external conditions affecting farming, but the different situations with regard to the resources of the individual farmers. Many times we concern ourselves with the specific size of farm which is most profitable and the amount of labor which should be incorporated into that farming business, when we should approach the problem from the standpoint that the farmer has available labor or other resources which are lost to him unless utilized in the operation of the farm. It may not be economical for some farmers to do certain things which many farmers elect to do, but we

may have to interpret economic principles into terms of farm practices which fit the resources on a particular farm. Some workers recognize almost an unlimited number of types of farming existing in a small area, which might logically call for inputs of different physical quantities of labor, power, and capital. It seems, however, that we can carry such a type of analysis altogether too far; rather, we must set up principles and factual information which will help the individual farmer to apply the principles of farm management to a specific problem farm. Farming never will cease to be an individual farm problem, and can scarcely be separated into groups of farms conforming to an identical organization when the characteristics of the operator and his resources are considered.

Farm management is criticized for failing to provide the farmer with the guidance he needs to meet current conditions. This criticism may be forthcoming because we have not clearly delineated the field ahead of us, rather than because of a failure of farm management research. Instead of criticizing farm management research for failing to meet the issues, perhaps we should analyze the broad aspects of our problem. Schultz in the development of his paper seems to be confusing individual economy with political economy. Perhaps it may be constructive for the research worker to subdivide the field of farm management for his own convenience and recognize that there is a major field of interest which consists of national policies with reference to agricultural production as well as farm management as the farmer understands it? The two must be harmonized. Having once established a general policy with reference to what the production of the country should be and the allotted share of that production to a community, the problem of the individual farmer is still the old farm management problem, "How can he best organize the factors of production—land, labor, and capital—on his farm, so adapt farm practice to his particular environment, and so dispose of his products as to yield him the largest net return while still maintaining the integrity of his land and equipment?"⁵ With AAA rules governing the acreage of certain crops, planning the organization and operation of the farm unit becomes a problem of new and vital significance. A farm management research program devoted to a study of "historical data on farmers' response to price and cost changes on a commodity basis"⁶ is not at all adequate. As a matter of fact, the forward-looking program is not to study what farmers do under certain conditions, but to motivate their future actions to conform to national policy and current conditions. When one considers the deterioration of soil in many areas, the 30-year old statement which includes "while still maintaining the integrity of his land and equipment,"⁵ takes on added significance. Improved practices leading to larger crop yields are bound to focus more attention upon the maintenance of soil resources.

Advocates of farm budgeting have been assailed because of the inadequate help they have given farmers in satisfactorily predicting the outcome of farming operations. In view of recent developments in farm planning there is reason to believe that some of the failure was due to inadequate data. Possibly some of the effectiveness of budgeting was lost

⁶ W. W. Wilcox, *JOUR. FARM ECON.*, 20: 417-429, 1938.

through destroying or disregarding what should have been the basis of an adequate budget; that is, input standards of known adaptation to farm conditions in the local community. They are obtainable only from an adequate research program. To be specific, they should include amounts of feed required by all kinds and classes of livestock under farm conditions; labor input by sizes and types of farms; power, machinery, and equipment standards for farms of different sizes and types of power; amounts of livestock; and building and improvement costs under similar variable conditions. Farm financial records, often criticized for not giving a cross-section picture of agricultural conditions, have a most decided advantage in farm planning because they provide standards representing superior management. Research feeding standards obtained under experiment station conditions while helpful have to be adjusted to represent farm conditions. For these specific input standards, records secured from farm financial and production records, enterprise cost records, and detailed cost records, all have proved helpful.

On the evidence of farmers' own statements, as well as their interest in it, outlook information has served an excellent purpose, but certain sins have been committed on the part of those who have carried it to farmers, because the farm problem had not been fully analyzed. There is some need of emphasis upon long-time sound basic organization of the farm as distinguished from the adjustment of enterprises to meet outlook conditions. The distinction between these two subfields of farm management does not have like significance in different areas possessing different type-of-farming characteristics. Choosing the Corn Belt as an example, we recognize that, the farmer cannot anticipate crop yields in advance because of variable climatic conditions. Prior to the planting season he can do no better than to anticipate average yields, and he knows that certain cropping systems should be followed in order "to maintain the integrity of his land and insure its future productivity." He, therefore, had best set up a system of farming that will make for the long-time productivity of his land while he secures his adjustments along other lines. Outlook information may be valuable to him in helping him determine when to market grain crops or to anticipate the numbers of livestock or the amount of livestock products that will come to market. Here outlook information attains its highest usefulness. It will guide him in determining when to sell off heavy breeding stock and replace them with younger animals of lighter weight. He can vary the size of some of his livestock enterprises within a relatively short time of the date when the products from them are normally marketed. He can change his methods of feeding to attain a type of finish which the market seems most likely to favor. Finally, faced with the reality of tremendous carryovers of grain crops, he may adjust his basic cropping system to enable him to build up soil fertility through temporary restriction on the acreage of soil-depleting crops. Storing up fertility in the land may enable him then to produce relatively large crops in years of adverse weather conditions when nationally there is apt to be a smaller production and higher prices. A reason for this emphasis upon outlook information is that while it has been pointed out that there are

too wide disparities between expectations and realizations¹ in farm planning in the hands of the individual farmer, we may not be ready to so far institutionalize agriculture as to remove from the farmer all of the responsibility for making operating decisions.

What does this mean in regard to developing research in the field of farm management? It means distinguishing those production areas of the state or nation which have certain characteristics and, therefore, certain farm management problems. Having determined these separate problem areas, we need to analyze the problems of these areas in order to obtain basic unit requirements in production so that the individual farmer will know more accurately the cost of adjusting his production in line with demand. In collaboration with the agronomist and horticulturist, cropping systems can be devised which over a long-time period are essential to the most economical use of the soil and other resources. Outlook information may dictate some changes in these from year to year without departing from a basic plan of conservation. In collaboration with the animal husbandmen, methods of utilizing available feeds for the greatest returns can be put into practice. Greatest progress in meeting the farmer's problems will probably be accomplished through evolutionary development of those farm management research procedures which have proven valuable, but which need to be quickened and adapted to keep pace with a dynamic agriculture.

As we adjust production in line with national policy, the farmer's unit requirements in production will change. Basic information pertaining to labor, power, and capital requirements essential to economical production need to be set up in a way which will promote intelligent farm planning. Farm planning from the individual farmer's point of view is just as essential as that for the Nation. Perhaps one of the most significant current developments in the field of farm management is that of individual farm planning. Possibly, we can capitalize upon the action programs instead of permitting them to discourage carefully planned crop rotations and the coordination of crop production with a well-balanced system of livestock production and efficient farm operation. Constructive development is being accomplished in marshalling coordinated agricultural data to serve as a guide to the progressive farmer.⁷ Recent development of interest on the part of farmers in working out detailed plans for the organization and operation of their farms and in full compliance with federal action programs indicate that farm management has lost none of its interest from the standpoint of the individual farmer. The information carried to him however must be of such character as to give him greater assurance of the soundness of plans which he is making for the organization and the operation of his farm. This must include a long-time basic plan for maintaining or improving the soil and provide the equipment needed for the efficient operation of the farm. Superimposed on a basic plan outlook information should lead to timely adjustments within the scope of the basic long time plan. The development of a sound farm plan that looks to

⁷ J. B. Cunningham, P. E. Johnston, and M. L. Mosher, Planning the farm business, University of Illinois.

the preservation of the farm resources is essential for maintaining a continuing interest of the same family in the same farm throughout a long period of time. This, in turn, is essential to a sound community life and an intelligent agricultural leadership.

DISCUSSION BY STANLEY W. WARREN

Cornell University

Dr. Schultz lists two major criticisms of farm management studies: "(1) the research results presumably do not provide a basis for guiding entrepreneurial decisions when economic change confronts the farmer, and (2) they afford no way of relating the actions taken within the farm to that of the economy as a whole." The writer agrees that these are serious criticisms, but feels that they are not entirely warranted.

One objective of farm management research is to obtain information which will help in organizing the farm business under stable conditions. This type of information is usually more valuable to young men who are starting farming than to men whose businesses are already established. However, as Dr. Schultz indicates, farm management studies should go farther than this, and should be expected to furnish a basis for decisions in times of economic change. While farm management research workers can make great improvements in this direction, it is the opinion of the writer that they have made many important contributions. Some illustrations for New York State will be cited. Other illustrations will come to the minds of workers in other states.

During the past 70 years (since the Civil War) the type of farming in New York has undergone radical changes. The opening of the West is only one of the reasons for these changes. They are still underway, and in some sections of the state are going on more rapidly than ever at the present time. For thirty years, farm management information has been available in increasing amounts to help farmers make their decisions with regard to these changes in type of farming.

A cost account research project was started in 1912 and has been continued each year since. The first bulletin was published in June 1916¹ and many printed and mimeographed publications have been made since that time.² One series of information made available by these accounts is the returns per hour of labor on farms keeping cost accounts (table 1). These have rather consistently shown that dairy cows, poultry, fruits, and vegetables have been profitable enterprises for New York farmers, while sheep, swine, and grain crops have not been profitable. Wheat and non-leguminous (timothy) hay were profitable during 1914 to 1920. Since 1920, timothy hay has been consistently unprofitable, and wheat has been

¹ C. E. Ladd, Cost accounts on some New York farms, Cornell Univ. Agr. Exp. Sta. Bul. 377, 1916.

² For the most recent publication see P. S. Williamson, Costs and returns from farm enterprises from 75 cost-account farms, 1938. Cornell Ext. Bul. 422, November, 1939.

profitable in only occasional years. This information has been of great value to thousands of New York farmers who have been confronted with various kinds of economic changes. The low returns on sheep and grain represent an economic change, since these enterprises were once profitable. To farmers who had not yet adjusted their farm businesses to this change, these annual figures on returns per hour labor were a stimulation to make changes more quickly than they would otherwise have done. Many farmers whose major difficulty was the wrong type of farming have found it easy to place the blame on other factors or such indefinite reasons as "hard times." The availability of this information has helped many to reach the proper conclusions.

TABLE 1. SUMMARY OF RETURNS PER HOUR OF LABOR,
NEW YORK COST ACCOUNT FARMS, 1914-1938

	Average		
	1914 to 1920	1921 to 1937	1938
	\$	\$	\$
<i>Livestock</i>			
Dairy Cows	0.33	0.24	0.27
Hens	0.67	0.37	0.39
Raising chicks	—	0.41	0.59
Sheep	—	-0.24	-0.23
Feeder lambs	—	0.16	0.65
Hogs	—	0.09	0.12
<i>Fruit crops</i>			
Apples	—	0.59	0.44
Cherries	—	0.69	0.46
Peaches	—	0.39	1.26
Pears	—	0.30	0.33
<i>Grain crops</i>			
Barley	-0.03	-0.12	-0.06
Buckwheat	0.07	-0.20	—
Corn	0.14	0.00	0.23
Oats	0.01	-0.15	-0.18
Mixed spring grain	—	-0.12	-0.01
Wheat	0.57	0.10	0.21
<i>Hay crops</i>			
Alfalfa	0.97	0.58	0.26
Clover and timothy	0.88	0.10	-0.15
Non-leguminous }		-0.08	-0.50
<i>Vegetable crops</i>			
Beans, dry	0.12	0.13	0.29
Cabbage	0.51	0.44	0.06
Corn, sweet	—	0.20	0.51
Peas, canning-factory	—	0.18	0.85
Potatoes	0.55	0.59	0.67
Tomatoes, canning-factory	—	0.32	0.52

Other farmers to whom this continuing series of information has been valuable are dairymen, who have become discouraged by low milk prices and who have wondered whether grandfather's farming system was better. This information has been exceedingly valuable in helping these farmers to keep their thinking straight, and in preventing them from jumping from the frying pan into the fire.

Another type of information which has helped farmers to meet economic change is the results of farm management surveys which have shown that under most conditions large farms (within the limits of the family size) have been more profitable than small ones. In a state which was settled before McCormick invented his reaper, the importance of the adjustment of size of farm to changing economic conditions is difficult to over-emphasize. The earliest farm management workers had to contend with the opinion of many farm leaders which was expressed poetically as

"A little farm well tilled
A little barn well filled
A little wife well willed"

Farm management research has shown definitely that the farm and the barn should be moderately large. This information has been helpful not only to individual farmers in making their own plans, but to persons interested in formulating wise public policies in regard to agriculture. It has prevented unwise public movements to encourage small farms. Some recent discussions indicate that further research, and teaching on this subject is greatly needed, because we hear some people in important positions advancing the opinion that if farms were smaller more people could be employed on them, and the bread lines in the city would thus be shorter. After having spent a year in China where the farms are so small and inefficient that 80 per cent of the people must be employed in food production, the writer is of the opinion that the problem of unemployment in the United States had best be solved in some other manner.

During the period in which the farm management research of this country has been done, the most important economic change with which farmers have been confronted is a fluctuating general price level. Unlike the changes previously discussed, the future of the general price level cannot be predicted with any degree of accuracy. The future of the relative profitableness of farm enterprises in New York can be much more accurately predicted on the basis of past experience. (We know nothing about the future, except on the basis of the past.) As long as the future of the general price level cannot be predicted, we cannot give a farmer much assistance in adjusting to it. Inability to predict the general price level can hardly be held up as an indictment of farm management research workers. Farm management research has, however, made an important contribution in helping farmers in adjusting to changing price levels, by isolating the effect of the price level from other factors and by pointing out that the difficulties did not call for a complete reorganization of their farms. For example, farm management records indicate that during the period of falling prices in 1930-32, the income advantage of large farm

businesses was wiped out (table 2). Continuing research during this period, and during the subsequent years of improved conditions made it possible to interpret this change in the relationship between size and profits. Had we had no farm management research it would have been easy to reach the conclusion that the general relationship between size and profits had changed, and that from now on large farms would have no advantage. Young men starting in farming in 1933 would have been in the position of trying to adjust to a falling price level after the fall was over.

TABLE 2.—RELATION OF SIZE OF BUSINESS TO LABOR INCOME*
3,491 GRADE B DAIRY FARMS IN NEW YORK
1925-26 to 1937-38

Total Work Units	Average labor income		
	Stable prices 1925-29	Falling prices 1930-32	Prices recovering 1933-37
Less than 200	\$ 236	\$-169	\$-190
200 to 500	452	- 56	- 39
500 to 800	878	- 91	192
800 or more	2367	- 88	613

* L. C. Cunningham, Dairy farm management. Cornell Univ. Dept. of Agr. Econ. Mimeo. Report A. E. 278. 1939.

Still another type of economic change to which many farmers have been subjected is that connected with the decline in the agricultural value of our poorer lands. This has been frequently characterized as a soil depletion problem. Farm management research supplemented by land economic research has shown that crop yields in our so-called "run down" areas are now as high as they ever were.³ This suggests that the difficulty is not soil depletion. Further study indicates that the new developments in agriculture cannot be applied to these lands. The reason for the decline in profits on our poorer lands is obscure as is the case with most economic changes. If the reason is soil depletion, fertilizer might be the solution. If the reason is that the inherent natural conditions of the lands preclude the use of new technological developments, removal of the land from agriculture would appear to be the solution. In the writer's opinion, farm management research has definitely shown the latter reason to be the true one. Many persons do not agree with this conclusion. This suggests that either further research or further education, or both are needed. This is a question of economic change which calls for both private and public action. Much valuable information has been obtained and used, and much more is needed.

Another place where farm management research has helped in hastening the concentration of agriculture on the best land is in our fruit counties.

³ See T. E. La Mont, Agricultural production in New York, 1866-1937. Cornell Univ. Agr. Expt. Sta. Bul. 693, p. 29. 1938. Also H. S. Tyler, An economic study of land utilization in Chenango Co., New York. Cornell Univ. Agr. Expt. Sta. Bul. 654, p. 7. 1936. Also Wm. Allen, The utilization of marginal lands. Cornell Univ. Agr. Expt. Sta. Bul. 476, p. 9. 1929.

Research of Scoville and others has shown that fruit farms on poorly drained soils have been unprofitable, and are becoming more and more unprofitable all the time (for example see table 3). As better methods of growing fruit are discovered, it becomes increasingly important that we grow our fruit on only the best fruit soils. When no one sprayed apples, the man who obtained only 50 bushels per acre was not in an impossible position in comparison with the man who obtained 200 bushels per acre. Most of the cost was in harvesting which is largely in proportion to bushels rather than acres. When 8 or 10 sprays are put on per year, only the best fruit land can pay for it. With the home-cider-orchard type of apple production, all soils were satisfactory. With the economic changes brought about by modern commercial production, many soils are not satisfactory. As a result of farm management research, farmers were shown the answer to this change, and very few new orchards are now being planted on unadapted soils.

TABLE 3.—RELATION OF SOIL TO LABOR INCOME APPLE FARMS IN
NIAGARA COUNTY, NEW YORK, 1913-37*

Period	Average Labor Income	
	Well-drained soil	Imperfectly drained soil
1913 to 1919	\$561	\$254
1920 to 1929	258	47
1930 to 1937	313	-117

* G. P. Scoville, Shall I plant an apple orchard? Cornell Univ. Dept. of Agr. Econ. Mimeo. Rept. A. E. 272, p. 7. 1939.

Thus far, little has been said concerning the second criticism mentioned by Dr. Schultz, namely that farm management studies have not afforded a way of relating the actions taken within the farm to that of the economy as a whole. Mention has already been made of the trend towards the retirement of poor land from agriculture, and the trend toward larger farms. In both of these, farm management research has been helpful first in stating the problem, and second in pointing to the solution. In both of these, it would seem to the writer that the public interest and the individual interest are one.

Farm management and land economic research is resulting in a hastening of the movement to concentrate our agriculture on our best land, by making better use of it. This is being done primarily through the education of individuals. The position of the State in the picture is merely that of a willing, but not aggressive, purchaser of land not adapted to agriculture. Here the independent action of individuals is being combined with a minimum of action by the state government to solve an important public problem.

The aim of farm management research is to help farmers make more money. For the most part this means lower-cost production, since the individual farmer usually can do little with regard to prices received for

his products. Lower-cost, or more efficient production would seem to be as much in the public interest as in the interest of the individual farmer. Only by cheaper and more efficient production can we, as a nation, expect to raise our standard of living. That farm management studies which point the way to cheaper production have not been found "of much value in getting at regional and national problems of agriculture" might suggest that the regional and national problems are being improperly attacked. To some extent, the national agricultural programs of recent years have involved curtailed production of certain crops in all regions regardless of whether the crop is well adapted to the region. This has the effect of preventing desirable type of farming adjustments. To the extent that this is true, such programs are a move toward higher cost and less efficient production which is not to the advantage of the nation. Perhaps this is why farm management studies have not helped in running these programs.

While the first criticism mentioned by Dr. Schultz may be valid for the purely theoretical type of farm management research, the above discussion cites examples of how farm management studies based on large numbers of actual farm records have been useful in helping a farmer to make his decisions. It is recognized that many states have not been able to build up an amount of farm management information large enough to help in all the types of problems mentioned above. We need much more farm management research, and there are many new methods, and refinements of old methods not yet discovered which will be found very valuable. In looking forward to the solution of many of our problems, we should not lose sight of past work which has furnished solutions or partial solutions to many problems.

DISCUSSION BY G. W. FORSTER

North Carolina State College

Criticism of farm management research is not of recent origin. From its inception some 30 years ago it has been subjected to a continuous ground and aerial attack. If this criticism had been as effective as it has been voluminous, research in this field should be on a high level and not subject to the observations noted by Schultz; that in short, farm management research, as a whole, has been a failure. This is a severe and disturbing indictment, especially so in view of the time and money which has been expended on research in farm management and since this association was founded to promote research in this field and to which, since its foundation, it has given more than passing attention. Perhaps it is not too unkind, if somewhat ironic, to congratulate the leaders of this association for their skill in handling this subject.

Of the two alleged defects mentioned by Schultz I shall discuss only the first; namely, that the results of farm management research do not assist the farmers in making entrepreneurial decisions when a farmer is confronted with changing economic conditions. To remedy this defect Schultz proposes a line of attack which merits consideration. He first directs our attention to the functions of the firm, which in this case is the farm, and to

why the firm exists. According to Schultz the firm exists because in a changing or dynamic society "production must be adjusted and coordinated in response to changing conditions, and it is the function of the firm to make these adjustments." In the static society there would be, as Schultz has pointed out, no functions for the firm to perform and the entrepreneur would have no decisions to make with respect to production plans. But the case is quite different in a dynamic society where conditions are constantly changing. The firm under such conditions is imperative as entrepreneurial decisions of a necessity must be constantly made. This being true, Schultz suggests that farm management research should be directed or re-directed to those phases which deal with expectations.

There is no valid reason why such an objective should not be approved. Indeed this has always been one of the objectives of farm management research but one which has not always been stressed largely, I believe, because of the difficulties involved in making forecasts which are correct enough to be of any assistance to the farmers and to the fact that a farm-operator is not a purely a business entrepreneur. It is significant that Schultz depends largely in his analysis of this phase of farm management research on the writings of such students as Kaldor, Hicks, and Hart. These economists deal with urban business enterprises. I do not wish to infer that the writings of such men may not have some contribution to the analysis of the farm or the farm enterprise, and Schultz is to be congratulated for bringing the writings of these students to our attention; but it must be kept in mind that farming is a unique enterprise and that it is affected by two rather distinct economies; self-sufficient and commercial economies. As a result of this mixture, the farmer in making his decisions is not affected or motivated solely by economic conditions which are so important to the urban industrial enterprise. It is for this reason that the analysis borrowed from or based upon purely urban business enterprise has not been in the past or is not likely to be in the future especially effective when applied to farming.

The chief criticism I have to make of Schultz's analysis, however, is not that it is based on the writings of urban economists, but rather the vagueness of his suggestions. Assuming that farm management research should be re-directed the question may be raised as to precisely how is this to be accomplished. In a rather interesting digression Schultz points out some things which should not be done but does not state how farm management research should be done. True, he devotes several paragraphs to this subject but his statement is nothing more than that which has already been recognized by competent farm management authorities. For example, he states: "Empirical studies will be necessary to give content and concreteness to the abstract outlines of what the producer's plans consist. The production plan becomes an analytical tool. It makes it possible for those in farm management work to come into closer grips with the realities of the farm. It is an instrument of considerable promise. It will, however, require much painstaking investigation to determine types of input-output streams; to find out how the determinates of the time span operate; and to discover the range of choice open to the farmer in making plans when he

must state the resources to be acquired, operations to be performed, and products to be sold."

This statement is true enough, but how this is to be accomplished Schultz does not say. In spite of this defect in presentation, I believe he is not chasing beautiful butterflies. I am inclined to agree with him that farm management research is defective. And if it were not for the good judgment of the farmer, the results of farm management research in the past would have been quite useless. For some 30 years defective farm management results have been presented to farmers and they have used them effectively, which to me is one of the great mysteries of our time. To emphasize this point, I shall refer to only one type of result which has been widely used. These results have been presented by what has become known as the method of direct comparison. Of all the methods devised to analyze and present farm management data this method is the most defective. From most any point of view it can be and has been repeatedly demolished. And yet if we are to believe the reports, this method has been used successfully. It leads one to the observation that a thing does not need to be true in order to be useful. In the case of this method, I think what has happened is this: The farmer is conscious that the results presented and the conclusions drawn from these results are not accurate. But nevertheless they are suggestive. To the farmer's mind they suggest certain things which might be done on his farm. It may be that he has not been giving sufficient attention to the size of his farm, to the yields which he is obtaining, or to any other factor which the method of direct comparison features. But that the farmer, except in rare instances, is going to follow the suggestions or conclusions drawn from the results in toto is quite inconceivable. But from such sources he gets ideas which agitate his mind and if he is an alert and intelligent farmer he will modify the suggestion so as to fit the conditions under which he is operating.

The suggestions made by Schultz to remedy the difficulties in farm management research should be explored and a beginning made in setting up the details of the procedure to be followed. Assuming that such a procedure can be developed and farm management research directed to the phase of forecasting expectation, I am still somewhat dubious with respect to the effectiveness of the results that might be obtained. This pessimism is based on a number of considerations. Most of our land grant colleges are not, as Schultz indicates, interested in doing effective farm management research. With one or two exceptions land grant colleges are not now expending any considerable funds in this field, and in the case of these exceptions the farm management research is most defective.

The United States Department of Agriculture, as an effective agent in promoting sound farm management research, has declined in importance. This is a serious situation because the research staff of the BAE should be in a position to assume the leadership in the development of new research techniques such as those suggested by Schultz. Not only this but the Bureau should have sufficient funds to develop and put into effect with the several states effective programs of farm management research. It should be made clear that this is in no sense a criticism of the research staff of the

Bureau as such. It is rather a criticism of the emphasis on the kind and type of research now being done by the BAE which is largely, if not solely, concerned with some agricultural program which may or may not be sound. Emphasis on such programs may be politically and economically feasible, but the field of pure research in farm management should not be completely abandoned. Nor are the various agencies established by private endowment interested in farm management research. On the contrary, they are almost solely engaged in research which tends to bolster up a jittery economic order.

In view of these conditions, I am convinced that we need a special agency designed to do farm management research, to unify research procedure, to be in a position to put the results obtained into effect on the individual farm, and to provide information which may be used to develop sound production programs of a regional and national scope. Such an agency should not be part of or under the direction of the Federal government or any of the bureaus of the Federal government, but be a special and distinct corporation established by Congress and supplied with adequate funds to perform these functions. Such an agency need not depend wholly, if at all, upon Congress for funds after an initial grant has been made. It could, I believe, provide out of its own operations sufficient funds not only to pay operating expenses but to expand this operation as demands for its service increase. Such an agency could not only perfect farm management research techniques but put the results to effective use on the farm and assist in developing wise regional and national farm production programs. What I have in mind is the establishment of a national farm management research and extension service.

DISCUSSION BY D. CURTIS MUMFORD

Oregon State College

One who discusses Dr. Schultz's article is somewhat limited because it is appreciated that the soundness of a theoretical treatise depends quite largely upon the character of the assumptions made. In the present instance these assumptions appear to be vaguely stated or entirely lacking. Under such circumstances the following comments may do an injustice to the author of the article under consideration, or, on the other hand, may fail to drive home certain criticisms which otherwise might be justly offered.

The divergences of which Dr. Schultz writes are certainly worth studying. In fact, the so-called divergences in agricultural production are probably much greater than in those industrial firms where there is an element of control over demand conditions by means of product differentiation or other methods of influencing consumer demand. However, before we can make any appreciable headway in correcting them, at least one important goal must be achieved, namely, we must perfect our supply, demand, and price forecasting mechanisms. In addition we must learn how to forecast producer and consumer response to such forecasts. As for the question of

price forecasting, there are many agricultural economists, and shall I say farm management workers too, who have developed, through the years, a wholesome respect for the magnitude of the task. As for the question of farmer response to forecasts, this problem is inextricably tied up with price forecasting to the extent that the whole problem of doing away with negative divergences in farming becomes almost indeterminate. Is it not true that the more we bend our educational efforts to get the expectancies of the mass of our farmers properly attuned to our forecasts, and succeed in this endeavor by influencing large groups to adjust their production, the more we tend to make our forecasts fallacious?

The present writer is very much in favor of supply, demand, and price forecasting. However he wishes to suggest that oftentimes such forecasts are especially useful to a relatively small number of farm operators so long as a relatively large number of other farm operators do not likewise adjust their operations in the same direction.

May we not suggest therefore that to the extent our forecasts are effective in one sense they actually become ineffective in another, and furthermore that because of this fact there does not seem to be much hope, either theoretically or practically, of reducing the divergences in so far as they are due solely to the fluctuations of price.

The introduction and admixture of the theory of the firm concept into the article under discussion certainly does not improve the author's case against the general nature of farm management research.

The writer does not wish to belittle the value of abstract economic thinking but he does wish to hazard the suggestion that the majority of our farmers in this country look upon farming as a way of living rather than as several million "firms." Also, at the risk of considerable criticism, he suggests that the majority of our farmers do not, consciously at least, adjust their farming operations in accordance with dynamic economic changes. To advance the argument, as Dr. Schultz does, that "... the existence of the firm (farm) of necessity arises out of and is dependent upon dynamic conditions" puts an unrealness in our agricultural picture which is not there.

To be more specific is it not true that the chief reason for the existence of most of our farms today is to provide a home and a way of life for the operator and his family? To be sure, even the operator of a self-sufficing farm is confronted with an economic problem but he would scarcely recognize it as such and surely he is practically oblivious of most of the agricultural price changes outside his farm. But referring now to commercial farms it is very doubtful indeed if practical farm management men who have been in the profession of managing farms for years would care to put as much emphasis upon the possibilities of economic gain through shifting back and forth with shifts in agricultural prices as Dr. Schultz suggests is desirable. To shift costs money!

Continuing again with our previous line of thought it seems quite probable that we would have farms even without economic dynamics. Furthermore the writer suggests that the ability of the operator, the type of farming, the type of soil, the size of the operator's family, and the pos-

sibility for non-farm employment, are far more important in helping to determine the size of a farm than whether or not the "stability of the economic phenomena impinging upon the firm" is increasing or decreasing.¹

In view of the foregoing discussion the writer is inclined not to accept the statement that, "without dynamic changes the size of the firm (farm) becomes a meaningless concept."

The upshot of the present discussion is to remind the reader that although there have been many in the past who have tried to show how farming and industry are alike, these comparisons, if followed rigorously, are quick to break down. Speaking generally and from a practical standpoint, the concept and theory of a farm cannot be extricated from the concept and theory of the home. This is one of the chief reasons why the theory of farm management is so complicated, so elusive, and so difficult. We are not dealing solely with an economic man, but with a human being and his family. We must deal, for example with the troublesome question of the value of family labor and the numerous questions of joint costs, and complementary and supplementary relationships between the farm and the home.

To be sure we have our large farms in this country—and no one is more conscious of this fact than is the present writer—to which we can apply the concept and theory of the firm. However if we, as farm management workers, are ever to help the great rank and file of individual farmers, rather than "a chosen few," we shall have to recognize the predominance of family farms, and place less emphasis upon the possibilities of shifting enterprises in accordance with price movements than is suggested by the article under discussion.

Dr. Schultz reminds us that farm management studies in the past have been criticised because, "they afford no way of relating the actions taken within the farm to that of the economy as a whole." In the opinion of the present writer there are certain aspects in the problem of the individual farmer in working out the internal economy of his own farm which are almost always diametrically opposed to the interest of the group, and no matter how much we try to make them appear to be the same, they simply are not. The reference here is to adjustments in production.

With the coming of Triple A contracts in 1933 we had, for the first time in this country, a potential situation in which the individual farmers could make adjustments on their own farms knowing that this action on their part would not only help their individual finances directly but also would help the group because of the price advance to be expected as a result of combined action.

May we repeat again that in general the sum total of those actions which may be economic from the standpoint of the internal economy on individual farms may quite often be diametrically opposed to the interests of the entire group. The two problems are somewhat different to say the least.

This is especially true in the planning field. While the writer is whole-

¹ In fact, we find certain farms becoming distinctly larger and others distinctly smaller during the same period of time and hence including the same economic conditions.

heartedly in favor of the present activity in so-called "State and Local Planning" this interest is principally because he sees in it the possibilities of the greatest single force of modern times in teaching rural people, as well as ourselves, the many interrelated agricultural truths which affect our private and group economy—and not because he sees in it a possibility of constructing a national agricultural program simply by adding together all the recommendations of the community, county, and state committees.

Viewed from a practical standpoint it must be evident that so long as we have in this country private property and six million rural entrepreneurs, the appropriate action of farmers in one county will depend upon the action taken by all the other counties in the United States and as fast as any one group or series of groups move in a certain direction it may be profitable for other groups to move in the opposite direction. Is not this the reason for the original Triple A contracts and the continuing financial inducements to encourage great groups of our farmers to move in approximately the same direction at approximately the same time in an attempt to secure economic advantage for these groups as well as to reduce the uneconomic utilization of our agricultural resources?

From both the theoretical and practical standpoint the writer wishes to endorse most heartily "State and Local Land Use Planning" as fostered by the State Agricultural Colleges and the Bureau of Agricultural Economics principally as an educational program and also as a program which should bring about a great number of needed local land use adjustments,—thereby tending to reduce some of Dr. Schultz's negative divergences—but he also wishes to suggest that from both the theoretical and the practical viewpoints the possibilities of building a national agricultural policy out of the summation of local recommendations will be a discouragingly slow if not impossible task due to the fact that the interests of the individual farmers, counties, and states, are generally so different from the interests of the entire group. The present writer is not opposed to such assistance, governmental or otherwise, which, upon occasion seems to be essential in bringing together and reconciling these two otherwise divergent interests.

Summing up the discussion on this particular phase of the article farm management research should not be criticised too severely on the score that research in this field cannot be taken over and applied directly in solving the problems "of the economy as a whole." Neither should this criticism be used in helping to prove that farm management research has "reached an impasse."

Dr. Schultz, in criticising farm management work in the past, states that "again and again, columns upon columns of figures are collected which do not have any significant bearing to the economic problems of agriculture either within or outside the farm." Perhaps one could also add an equally truthful comment that again and again, pages and pages of theoretical discussions have been written which unfortunately seem to fail in contributing any practical bearing on the economic problems of agriculture either within or outside of the farm.

Finally does not the concept of economic dynamics assume a consider-

able amount of economic unpredictability? Dr. Schultz pleads for more accurate expectations. To the extent that our predictions and therefore our expectancies could be brought more in line with our realizations, would we not be approaching the stationary state in which Dr. Schultz suggests we would need no farms at all?

DISCUSSION BY R. S. KIFER

Bureau of Agricultural Economics

Although Dr. Schultz's criticisms do not embrace all of the adverse comments which could be made against farm management research, they are so general in nature that perhaps most criticisms of farm management conclusions could be grouped under one or the other of the two categories.

I

A great deal can be said in defense of previous farm management research. Although the conclusions from most farm management studies have not provided infallible directions to guide farm operators in making those decisions from which sound or profitable farming systems are evolved, and although farmers have had difficulty in going from a general recommendation to a specific adjustment, the studies still may have been useful for some purposes. Furthermore, although the relation between the conventional type of farm management report and the development of national farm policy may not have been definitely pointed out, we should not conclude that research in the field of farm management has been entirely sterile from this point of view nor that the conclusions have been utterly valueless for policy making.

A person familiar with the farm management literature could build up a rather extensive bibliography of reports which do provide analytical aids to farmers in reaching their entrepreneurial decisions. Only one will be mentioned by way of illustration. A recent bulletin on plantation organization and operation¹ discusses in some detail the relation between different methods of handling labor and plantation earnings. Under the combined influences of the cotton program, the impact of recent developments in the use of power and labor, and the effects of current wage rates, a pertinent management problem relates to the choice between using cropper labor for producing cotton on a share basis or producing cotton with hired labor. Under particular situations the use of hired labor may return larger net incomes to plantation operators. An analysis of this problem is not only useful to managers interested in increasing plantation income, but it is absolutely essential background for wise administration of national agricultural programs.

Examples of the use of farm management research in formulating agricultural policy are more difficult to isolate. Many special reports prepared for the action agencies were never published. In the Agricultural Adjust-

¹ L. E. Langsford, B. H. Thibodeaux, *Plantation organization and operation in the Yazoo Mississippi Delta area*. U. S. D. A. Tech. Bull. 682, 1939.

ment Administration report for the year 1937-38,² the results of a farm management study conducted by the Bureau of Agricultural Economics and the State colleges in cooperation with the AAA are used as a measuring stick for judging the accomplishments of previous conservation policies. The conclusions were available for use to guide, if not to determine policies in agricultural adjustments. Perhaps the regional adjustment projects of 1935 and 1936 were not research according to some definitions, or perhaps they were only partially in the field of farm management. Under a narrow definition, one which would restrict farm management research to the analysis of farm financial statements, farm management may be unable to claim these projects. Regardless of definitions, the data used came to a large extent from farm management studies and were put together to reach new conclusions under what is definitely recognized as farm management technique. In any case, the work was done by those in the field of farm management, and if we accept the statement that farm management research itself commands more personnel and consumes larger appropriations than any other farm economic activity, we must accept a very broad definition of this field of work.

Under his classification of research work in farm management, Dr. Schultz recognizes two major fields of activity; the first is concerned with the technological problems of production; the second embraces certain economic aspects of farm organization. Here, again, we have two categories so broad that a combination of the two will include practically all phases of the farm business. The end product of research under these headings is to be the development of a farm operating plan.

For a number of very good reasons the determination of the most profitable combination of enterprises has been a primary objective of farm management research. The most profitable combination of enterprises, like the highest profit combination of the factors of production can be defined as of a fixed period, and it can be derived approximately by using data on past performance. The analysis of factors influencing the selection of enterprises receives major consideration in reports of farm management research. In many areas the determination of the most profitable combination under prevailing and prospective conditions is one of the major problems in farm adjustment.

In all except the most stable areas in which particular enterprises have a very definite competitive advantage over their alternatives, changes in economic conditions, including changes in demand, and possibly even changes in production costs may give rise to the need for changes in farm organization. A recent bulletin³ written for a portion of the Western Great Plains analyzes existing farm organizations primarily as a basis for determining the type of organization that will be most stable and most likely to be successful in the future in this area. It indicates a particular situation in which the highest profit combination of the factors of production has

² U.S.D.A. Agricultural adjustment 1937-38, Agricultural Adjustment Administration G-86, 1939.

³ Neil W. Johnson, Farm adjustment in Montana—A study of Area 7. Montana Exp. Sta. Bull. 367, 1939.

not yet been determined, and in which the organization of the enterprises is the first object for determination in a farm management study.

Although the emphasis in some of the earlier "budgeting" bulletins was placed on farm organization as such, the element of change has not been wholly neglected. The primary reason for setting up "profitable systems of farming," illustrated by farm budgets, has been to provide a basis from which production plans could be formulated. In many cases the farm budget offered an objective toward which the farm operator might adjust his business, but I doubt if many farm management workers were considering an inflexible plan when the farm budget was set down on paper. As a matter of fact, the necessity for making adjustments was recognized and many calculations were made to show the probable effects of changes in enterprises and in the use of the factors of production on income. For instance, an Arizona circular⁴ considered probable returns from different crops when choices could be made from year to year.

It has been necessary, in setting up farm plans, to develop input-output relations on as accurate a basis as possible. These conversion ratios were not sought to supply us with universal production constants, as Dr. Schultz implies, but rather to express the central tendency of input-output relations under a described set of circumstances. The variation among areas is recognized nearly always and the variations among farms in an area are sometimes taken into account. The technique in determining these ratios is imperfect and the results from the standpoint of making an ideal farm plan are crude, but there seems to be no object in attempting to refine our planning technique or to expect perfect results until the information on which these production relations are based becomes more nearly accurate.

II

The question raised by the preceding discussion is: What will be included in the field for farm management research? If the objective of farm management analysis is to guide the farmer in making decisions, or if the end product is to provide information from which national policies pertaining to farming may be formulated, then the field for farm management research must include synthesis of all sources of information needed in reaching the answers. This field would not limit farm management research to the analysis of recorded farm business transactions expressed in dollars or cents, nor to the tabulation and summarization of farm business surveys, or farm account studies. We cannot be satisfied merely with picking over the recorded information from related physical sciences, but must, if necessary, cooperate with workers in these fields to secure data adequate for our purpose.

An illustration at this point may be taken from the demands on farm management workers to show the economic desirability of adopting on farms certain practices recommended in the interest of soil conservation. Before we can determine the economic advantage of adopting such prac-

⁴ Byron Hunter, Farm returns in the Salt River Valley. Arizona Ext. Cir. 60, 1929.

tices as contour operations, strip cropping, terracing, or increasing the proportions of crops classed as non-erosive, we must know the effects of these practices on subsequent crop production. The research necessary to give us the answers probably belongs in the sciences dealing with crop production, but until we do have satisfactory answers from them, our only recourse is to secure from alert farmers statements of results which they have obtained under their own farm conditions. The answers may not have been reached through the scientific method, and the probable errors may be quite large, but we cannot appraise the value of these practices and give suggestions to farmers which would lead to adjustments in their farming program unless some information is available. Although much of the research work in farm management has been statistical in nature, research workers in farm management have also employed the experimental technique, and have resorted to the synthesizing of available information to consider important but untested production relations.

By whatever method the information is obtained most of us would agree with Dr. Schultz that farm management research must embrace the twin objectives of adjusting farm operation to internal factors and to those factors external to the farm business. We certainly would not want to claim a monopoly over all sources of information required by a farmer in reaching decisions. But rather than to say that farm management research should exclude a study of input-output factors or technical ratios because some of the production sciences deal with some phase of the subject, I think we should decide to use whatever information is available from these sources, and yet be willing to cooperate in refining data from these fields whenever greater refinement is needed. Neither can farm management ignore external factors, such as those arising from institutional changes, or changes in demand, because they are outside of the scope of the individual farm operation. Since all of these factors bear upon the problem of the organization of farm resources and upon decisions relating to changes in farm plans, they become grist for the farm management mill. It follows that if the needed grist is not available it must be produced, and preferably in cooperation with workers in the special fields that are involved. The idea that the farm manager's job is that of production engineer, that the farm management expert is a synthesizer of data from many sources is by no means new. Even the problem of working out the production relations within the limits of a farm boundary requires the invasion of fields already staked out by other branches of agricultural science for the necessary data.

III

The problem of farm management is to combine the elements entering into production in such a way as to maximize returns. Whether farm management is considered an offshoot of production science with the objective of shaping the physical elements with regard to monetary income or as a phase of production economics which uses physical data in reaching the most desirable economic combination, the objective remains the same. The first grouping of land, labor, equipment and supplies is readily accepted as

in the field of economics. The problem of planning enterprises is a phase of the procedure one step nearer to dynamic reality. Which of these is the most important problem depends upon the nature of the change that has brought about the need for adjustment. The choice between enterprises or between the levels of intensity with which each enterprise is operated is a managerial function. Either problem is economic, and both may arise from changes outside the farm. The only difference is that, while a picture of a combination of enterprises can be drawn from average production ratios, the optimum level of intensity requires something more. The change in output with variations in input and the influence of price changes on the most economic combination of factors of production within an enterprise is required for analysis of the latter problem. It should be quite evident that changes in levels of intensity probably would change the best balance between enterprises or, if you prefer, in the combination of the factors of production.

An average relation for an area, a farm, or for a particular set of assumptions may be useful in setting up the organization plan. A more elaborate input-output analysis would certainly be required to reach the most profitable level of intensity or to make the type of adjustments that would accompany the execution of Dr. Schultz's production plan. The input-output studies which give for farm conditions the variations in output with variations of the input factors are essential. The type of study required to yield the necessary information may belong in the field of the physical sciences but the economic implications are sufficiently strong to justify an economist's interest in the project.

The determination of these relations are, as Professor Schultz emphasizes, extremely difficult, variations are wide, and influencing factors are many. It should be feasible, however, to secure measures of the influence of such production factors as are under the control of a farm operator. True, the farmer cannot influence the force of weather nor most of the economic factors. These are outside his control, but the production ratios determined under farm conditions will still have as high a degree of accuracy as the degree of control which the farmer has over the stream of his inputs and over his production. There may be some scheme whereby the error of expectations may be reduced, but it seems to me that the error will always be as great as the error in determining the production ratios on which the physical expectations are based. If economic theorists in their contemplation of the problems of the firm can reduce this error then Farm Management, instead of having reached an impasse may be in position to take positive steps forward.

It is to be regretted that Dr. Schultz did no more than to introduce the idea of the nature of expectations to the firm, the discussion of which was left for a later occasion. This subject is of primary importance in farm management. The divergence between technical expectations and production and between price expectation and returns is undoubtedly the cause of losses in agriculture. Such errors are not confined to agriculture but are characteristic of non-agricultural activities as well. Errors of individual judgment are evidenced by poorly allocated resources and unprofitable

investments. Errors of policy, or mass mistakes, can be seen in agricultural distress, erosion, excesses of supplies of some products at certain times and shortages of the same product at others.

Practically, the zone of divergence may be narrowed either by raising production to expectations or by lowering expectations to the level of reality. Perhaps too much attention has been given to the traditional approach of increasing efficiency. We have emphasized means of increasing efficiency, means of improving techniques, and have set rather high standards for performance. Perhaps research of high order should be initiated to determine what expectations really are, so that through education and demonstration farmers would have available the information which would reduce expectation to production probabilities. This then would remove one difficulty, that of overvaluation, and the resulting overintensification which constitute one source of maladjustment and economic and social loss.

Dr. Schultz has raised many more problems pertinent to farm management research than can be adequately discussed here. One of the most significant perhaps is that relating to the dating of operations and timing the stream of inputs and outputs. By what technique can we pass from the determination of the highest profit combination as of a particular time to a succession of adjustments to take advantage of changing economic situations. Even though we omit such unpredictable aberrations as unusual droughts, floods and wars, yet how can research point the way to a utilization of either a long-time outlook, the knowledge of short-time swings, or charts of monthly price and production changes? Assuming first that we have as tools a reliable long-time economic picture that will permit long-time planning, the initiation of an adjustment in production is more complex than the mere expansion or contraction of an enterprise. Changes in capital structure, the element of time in postponed income, and development on the part of the farmer of a particular ability may be involved.

Not all inputs are readily varied. Equipment represents an investment for an intermediate period and one which cannot ordinarily be liquidated without loss. Buildings from the adjustment point of view are for all practical purposes fixed, and the cost of developing an orchard, like the investment in land, can be retrieved only through production or by disposal to some other investor. From the management standpoint the problem of utilizing these fixed and indivisible factors may be as important as or more important than the problem of discounting the values of anticipated production. While changes in rapidly consumed or highly variable inputs can be made readily and resistance to such adjustment rests largely in producing habits and the folklore of farming, the resistance of fixed investment is one that the economist must consider.

The procedure sketched by Professor Schultz for production planning is not new. The device under the terms "budget," "advance estimates," "substitution method," "farm plans," etc., has been a tool for both analysis and presentation of data for at least 20 years. The farm plans used by the Farm Security Administration are good illustrations of its current use. One weakness of the budget method has been the lack of reliable data

on technical and economic expectations. To use it as an analytical tool for precise analysis of future expectations would require first the forward looking approach geared to the dated stream of cost factors and production and a more exact measurement of physical expectations for particular situations, possible only through careful research. Moreover, if the plans are to be effective in reducing the disparity between hopes and actual returns we need more complete information on the trends and cyclical swings of prices.

Just as the calculation of production relatives for a single enterprise leads us to cooperative relations with the production scientist so the use of price forecasts leads to the field of marketing and price research.

IV

I think it unnecessary to prove that a farming system is wholly bad before suggestions for improvement can be made. Similarly, it should not be necessary to discredit all research efforts in farm management before changes in objective and methods can be recommended. Just as changes in a production program are needed for a farm because a given highest-profit combination does not persist in a changing economic world so should farm management research consider changing conditions in planning a flexible program that will permit evolution in the field of research.

To follow out the farm adjustment analogy, greater specialization along fruitful lines might lead to better returns or under certain circumstances greater diversity might stabilize the research business. Whatever the adjustment, the research worker, if he has an interest in marketing his product, will keep an eye on current and prospective demand. Are the conclusions from a research project set out so that a manager, or a representative of an agency engaged in working out farm plans can best use them? I would suggest that too many of these workers, coming sometimes from fields other than economics, quite frequently consider that farm management research begins with the keeping of a farm record, or the filling of a survey schedule, and ends with the publication of a series of tables. Quite often untrained workers, and persons trained in other fields have begun their work at the same point as Spillman, Boss, Warren and others began theirs in the early pre-war years. Can we do something constructive to shorten the time lag in the development of research workers and research work?

Collection and analysis of data with the objective of setting up working farm units to fit into different situations would add zest to our problem and practicability to results. We can elect other objectives than that of showing how one man can obtain the highest possible returns. An objective just as challenging would be to measure and organize the resources of land and equipment needed for farm living by a given agricultural population under particular production and economic conditions.

If farm management research had not been focused so sharply on the objective of highest efficiency in the operation of a single farm; if it had considered the influence of adjustments made on all other farms to the problems of a given farm in an area; if it had considered the total effect

of increased farming efficiency within the region on a farm in a particular area; or if it had weighed the mass effects of individual adjustments on farms in the nation on individual farms within a region; the results would have been more effective in developing national policies.

Too narrow a devotion to the objective of highest income per operator has left us with little basis for appraising other objectives. We have assumed that excess workers and displaced farmers could find employment outside of agriculture. With the outlet for excess man power closed and the pressure of technical advances on production, attention could be shifted with no sacrifice of claim to scientific method to such problems as the return per worker and the welfare of groups other than operators of commercial farms. Analysis in farm management could be directed to such problems as the best use of available labor even as we have studied the best use of capital and land in terms of returns for the entrepreneur only, and with hired or share cropper labor considered only as a variable cost, that is, a commodity purchasable in the market at the time and in the quantities needed by any entrepreneur.

Increasing commercialization in some areas, an increasing number of non-commercial farms in others presents a problem of how the nation's agricultural resources can best be used in view of the need for farm products and the population to be supported. The answer will not be obtained by determining the aggregation of resources that will yield the highest monetary return to one directing individual, but rather by a policy aimed to direct the use of the total resources. Such a policy in turn affects the operation of farms within an area and will succeed only as the programs developed to translate the policy into action provide for some rational use of resources by individuals. This problem, like many others, offers a challenge to research workers. The analysis of this and similar problems will give direction and momentum to a machine which Dr. Schultz and others think has bogged down.

HOW SHOULD AGRICULTURE BE FINANCED?

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A definite feeling has existed in and out of Congress during many of the last twenty-five years that our farm finance system has been unsatisfactory. The large amount of Federal legislation on farm credit in this period provides ample evidence in support of this view. Nor has this feeling entirely disappeared. Several bills calling for drastic credit revisions are now scheduled for debate in the coming session of Congress. In appraising past legislation and in marking out a future course, the question may well be raised as to what kind of farm credit system, private and governmental, is desired or needed in this country. The following discussion tackles this question by dealing, first, with the outline of an ideal system; and, second, with some desirable changes in our present farm credit organization. Not all features of the farm credit system can be covered, naturally, because of the limit to the length of this paper.

Outline of Ideal Farm Credit System

An ideal farm credit system should measure up to at least four major requirements: (1) adequate credit should be provided at all times, including liberal extension during periods considered depressed, and conservative advances during periods considered prosperous, (2) low competitive interest rates should be offered by tapping surplus funds in the investment market, (3) lending agencies, particularly governmental, should be classified and grouped according to the specific types of credit extended to prevent overlapping and friction, and (4) loan provisions, including term in years, method of payment, appraisal of security, and amount loaned, should be adjusted to the peculiar conditions inherent in agriculture.

Adequate credit presupposes the existence of at least some agency not actuated entirely by the profit motive because liberal extension of credit during a depression is not always possible by a private agency. Moreover, an agency that curbs its credit advances during supposedly prosperous times might find itself with little business in those years. Only an agency run in behalf of the public interest, like the Federal Reserve System, would meet this test. It is no criticism of private lending agencies to say that they are unable to give agriculture the benefit of sustained credit at

all times because these private agencies have a primary obligation to their depositors, bondholders, and policyholders.

Low, competitive interest rates are not possible unless financial machinery is set up to bridge the gap between the demands for funds in small amounts throughout the farm territory on the one hand and surplus funds in the money centers on the other hand. Either private or governmental agencies can provide machinery of this type; but as it has happened in this country, such attempts by private agencies have not been sufficiently broad or well integrated to guarantee a permanent closing of this gap. Local banks have hesitated, especially since 1920, to borrow additional funds when their own funds were inadequate. Farm mortgage companies never have developed to a point where they served all of the country with funds borrowed in the surplus money centers. Insurance companies which bridge the gap by lending their policy reserves on farm mortgage security can not be relied upon entirely because at times policy loans or other demands for their funds may make it necessary for them to retire almost completely from the farm loan field. In addition, insurance companies do not pretend to serve the entire country but choose the territory in which they loan their funds and this territory in recent years has been largely restricted to the best and most profitable farm loan areas where the farm credit problem is least serious.

Farm loans need to be classified according to purpose, not only to determine the types of credit required by farmers, but also to prevent unnecessary duplication of lending agencies. Three principal types of farm credit should be recognized: land purchase and improvement credit, production credit, and rehabilitation credit. Price stabilization loans on commodities and loans to farm co-operative associations are two additional types not usually considered as farm credit but closely identified with it.

At one time an attempt was made to classify farm credit on the basis of term, as, long, intermediate, and short. The Federal Intermediate Credit system, for example, was created to make intermediate credit loans. In actuality, however, there is no clear-cut dividing line between intermediate and short term credit; it is much easier to place both intermediate and short term loans in the one category of production credit, recognizing, to be sure, that production to the cotton farmer means a short, seasonal period, and to the range livestock operator a period of at least a year.

Loan agencies should exist to provide farmers with the three types of credit mentioned, land purchase and improvement, production, and rehabilitation. Sufficient land or long term credit institutions should be available not only to take care of those

farmers actually buying farms or making improvements on their land, but to take care of farmers who find it necessary to refinance indebtedness incurred previously to buy a farm. These land credit agencies may include some, like local banks and insurance companies, who lend chiefly on conservative first mortgages in the best territory; others who lend on first mortgages over the entire country; and still other institutions or individuals such as former owners who advance funds on first or second mortgage security up to a large percentage of the total value of the farm. Private agencies, private individuals, and NFLA's should do as much of this business as they can with safety and leave the remainder for the government or government-sponsored agencies.

Agencies furnishing land credit have a difficult task because farmers need loans with an unusually long term and with special payment provisions. As will be brought out later, the very nature of farming, with its heavy capital investment and variable income, demands these features. The need for this special type of land credit is particularly pressing with the more liberal loans above 50 per cent of farm value and with all loans in areas where, as in the Great Plains, income is highly variable from year to year.

Production credit requirements are not as hard to meet as those for land mortgage credit because the element of time is not as important. Yet there are several standards that lending agencies in this field should have. Production loan agencies to be of maximum service must budget their loans in line with farm operations. The farmer needs a certain amount to plant the crop, an added amount to cultivate the crop, and a final advance to pay harvesting expenses; or the livestock operator needs an advance for feed in the winter, an additional advance for taxes and spring operating expenses, and a final sum to pay for expenses incurred in putting up hay in the summer. A desirable line of production credit, in consequence, must allow for certain advances when needed and provide for liquidation when it is likely to occur. Budget financing, requiring as it does an intimate knowledge of farm operations, places a heavy responsibility on the lending agency but a responsibility that can not be avoided by agencies who propose to serve the production credit needs of the farmer. Production credit is usually offered by local banks, private individuals, equipment companies, and merchants. But these agencies are not prepared to handle all production credit needs in all areas and at all times. There are some surplus credit areas where no assistance is needed but, on the other hand, there are areas like the South and West where local credit is inadequate even in a normal year. As a result, some form

of governmental assistance is needed, such as that extended in the development of the PCA system.

Rehabilitation credit, the third type, includes loans to assist low income and heavily-indebted farmers. Drought loans, seed and feed loans, in fact all kinds of disaster loans, are also included in this category. The chief characteristic of this credit is that the farmer seeking it has no other source from which he may borrow; that is, he is not eligible for a land or production loan from the agencies offering such credit. One of the principal requirements of such credit is that, along with the loan, some management assistance is or should be supplied to help the farmer overcome the handicap which has placed him in his present position. Obviously, special terms of payment are necessary in connection with loans of this type.

Rehabilitation loans are largely government loans because private agencies operating under competitive conditions would have little reason for making such loans except at excessively high interest rates. When loans of this type have been made in the past by private lenders, it is small wonder that the interest rates charged appeared at first to be exorbitant. But the cost of lending, say \$150 in installments to a low-income farmer, will be found to be rather high, especially if losses are figured. Cooperative credit agencies could not charge these losses back to other borrower-members without causing a discouragement to cooperation.

Any agency that provides farmers with credit should adapt the terms and provisions of its loans to the conditions which exist in agriculture. Much of the difficulty in farm lending in the past can be attributed to a failure on the part of farm lending agencies to recognize this point. Loans have been made for periods that were too short or too long, fixed payments have been specified where variable payments would have been desirable, and charges have been, on occasion, wholly out of line with the cost and service rendered. In the light of this situation, a brief discussion of the important characteristics in agriculture which affect farm credit is presented.

Agriculture, in the first place, is a seasonal industry. Loans to farmers should be adjusted in amount and timed in payment terms with crop and livestock production. To do this means that those making farm loans should understand the basic principles of farm production. Crop disasters and livestock losses from disease, a second condition peculiar to agriculture, must be included as necessary risks in any farm credit system. Drouth, floods, early or late frosts, hailstorms, and cyclones strike the individual farmer

a disastrous financial blow unless he is protected by insurance. And when it is impossible to cover all or part of the risk with insurance, the credit agency must be prepared for the shock.

A third condition in agriculture, often overlooked, is the large amount of credit needed because of the large investment in relation to gross income. Most types of farming require a heavy capital outlay for land and equipment and only a relatively small outlay for labor and materials. A farmer may have a total gross income in a year equal to only one-fifth of his investment, while the merchant in the city or the cooperative creamery may do a gross annual business far in excess of the total investment.

A fourth condition is the relatively small unit and small loan in agriculture. Although large-scale business is common in industry and business generally, it is the exception in farming. It is the credit demand of the family farm unit which an agricultural credit system must serve. Distance is a fifth condition that should be considered along with size of loan. It is costly and time-consuming to make trips to see individual farmers and it is likewise difficult for farmers to get to the larger cities. Furthermore, the number of farmers who trade at any one center is definitely limited by distance. In contrast, a large city may have thousands of business firms whose distance from the banks is not considered a handicap. Wide fluctuations in prices of farm products is a sixth condition faced by a farm credit system. Even though this situation is widely recognized, farm credit agencies often disregard this fact by specifying fixed payments instead of variable payments for cases where price fluctuations are likely to cause difficulty in meeting fixed dollar amounts.

A seventh condition peculiar to agriculture is the inseparable relationship between the home and the business. Many farmers would undoubtedly prefer to buy either their home or their business by itself. But, unfortunately, farms are sold as a unit with no separation of home and business. The consequence of this condition is that farmers are forced to borrow more credit than they would if they could buy a home and business separately. A similar difficulty is experienced by farmers in buying a farm piecemeal. Although some farmers do buy a small tract with buildings and rent additional land, it is usually difficult if not impossible to rent or to buy the necessary land to go with the small tract.

The eighth and final condition in agriculture is the strong feeling in this country in favor of farm ownership by operating farmers. The land policy of the government as reflected in the disposal of the public domain through sales and homesteads has favored owner operation; that is, independent farm owners, not tenants and land-

lords. The credit institutions sponsored by the government have had a similar objective. This policy is more than just wishful thinking; it is a principle and tradition so firmly entrenched in the minds of the people that Congress has and probably will continue to grant funds in various ways in order to maintain and further ownership of farms by farmers.

Desirable Changes in Present Farm Credit System

Simplification is the principal improvement needed in our present farm credit structure. This need for rearrangement applies particularly to governmental credit services which have been and are now the subject of Congressional discussion. There are too many separate agencies, each with its distinct creative act of Congress to give it individuality. Each of these agencies naturally wishes to build for itself a reputation that will insure its permanence as an indispensable credit organization for agriculture. But the farmer for whom these agencies have been established is bewildered at the large number and complicated inter-relationships of governmentally-sponsored credit agencies. It would seem desirable on the face of it to present to the farmer a more unified credit service.

When the FCA was formed in 1933, a simplified set-up was in the making. From the FCA Annual Report of 1933 comes this statement:¹

"From the individual farmer's point of view, the centralization of administrative control with the consequent simplification of procedure for securing loans will make for more effective and economical credit service than has ever been available to him in the past."

And from the Annual Report of the FCA for 1934 come these words:²

"Before the Farm Credit Administration was organized, four separate Government departments or offices shared the control or supervision of existing facilities set up to finance agriculture.—Close coordination of policies and practices was difficult if not impossible. Duplication of both services and personnel was inevitable.—The first step in remedying the situation was the centralization in the Farm Credit Administration of the supervision of all Federal agencies concerned primarily with farm credit."

Unfortunately this attempt at unification was short-lived. The organization and development of separate corporations within the FCA, the making of the rehabilitation loans and the Bankhead-Jones tenant purchase loans by the Farm Security Administration,

¹ P. 6.

² Pp. 7, 8.

and the separate development of the REA soon made the picture in terms of unity as dark as before the FCA was established.

The following outline of a desirable credit system for government-sponsored agencies is suggested from the viewpoint of the farmer for whom the system is supposed to exist. Three major farm credit groups would be established if possible under one agricultural finance administration. These groups would be the cooperative credit agencies, the government land mortgage, and government rehabilitation groups. The advantage of this division would be segregating all cooperative credit activities, which are only partially governmental, into one unit, all strictly governmental land mortgage activities into the second unit, and all reconstruction loans into the third class. The FCA has made a distinct contribution in cooperative credit in the development of the PCA system. This development should be furthered by allowing the cooperative group, the PCA's, NFLA's and Banks for Cooperatives, to become independent of the agencies owned entirely by the government. Another argument for keeping the cooperative agencies together as a unit is that they operate in a competitive field quite apart from other types of strictly governmental credit offered farmers. An important exception needs to be made, however, for the Federal intermediate credit banks and other government agencies which directly serve the cooperative credit units in reaching the money market; the close tie-up of these agencies with the cooperative system is a good reason for their inclusion as a fundamental part of the cooperative group.

Coordination between the cooperative group and the other two government credit groups could be achieved by maintaining the cooperative group as a unit under the general supervision of the agricultural finance administration which would be responsible for all farm credit activities connected with the government. Land purchase or farm mortgage loans for more than 50 per cent of farm value, including FFMC (Land Bank Commissioner) and Bankhead-Jones (tenant-purchase) loans, form a special group of government loans with more risk and with more management service needed than is the case with conservative first mortgage loans by the Federal land banks, insurance companies, and other agencies. The reconstruction or rehabilitation loans are production loans of a type that local banks, PCA's and other lenders are not able to handle. Consequently, all loans of this character logically belong in a group by themselves. The three groups, therefore, would be (1) cooperative credit, (2) government long term or farm mortgage credit and, (3) government short term or rehabilitation credit.

A change in the cooperative credit group, which would probably be acceptable to farmers, would be a consolidation in the districts of the various credit corporations, or, if this were not possible, a centralization of the management. To some extent coordination is provided by the one board of directors for all credit units and by the General Agent who acts as a coordinating officer, but these provisions do not go far enough. Joint operation of PCA's and NFLA's has not been satisfactory in many cases but the difficulty in part would appear to be separate corporations in the district office. If these district corporations could be merged in some way, a more effective system might result. City and country banks, for example, are able through one corporation to offer different types of services and loans. The cooperative system, however, is made up of units with different ownership interests; the problem is to find some means of simplifying this structure. A practical solution might be the appointment of one individual to serve as president of all four corporations.

The purchase of stock is a feature of the cooperative system that should be changed from the farmer's viewpoint. Purchase of stock equal to 5 per cent of the loan has been a stumbling block in the cooperative development of the NFLA's and to a lesser extent of the PCA's and the Banks for Cooperatives. The argument in support of the stock is that the farmer should contribute by buying stock in order to make the system cooperative. But in actual practice, the farmer does not advance the capital; he merely borrows the amount to buy the stock along with the rest of his loan. The main disadvantage of the stock is that it looms large at the time the loan is made and its value is difficult to calculate when the loan is paid. Farm psychology reacts unfavorably to the stock idea. In place of stock, every borrower should become a member of the cooperative by payment of a nominal fee like one dollar. Borrowers, however, should be required to contribute to the capital or reserve of their cooperative by paying a small amount, say one-fourth of 1 per cent, as part of each and every interest payment. This plan should make the NFLA's more truly cooperative than they are at present. The small addition to each interest payment would not appear as large as the 5 per cent stock. This capital contribution with each interest payment would go into the local cooperative just as the cooperative creamery subtracts or retains a small amount of each cream check to build up the capital of the creamery. Patronage dividends, after provision for losses, would be paid by local credit cooperatives not on stock but on the basis of the amount borrowed or the amount of reserve contributed by the members. No provision to pay back the capital or reserve con-

tribution would be necessary, the permanent capital ownership always belonging to active borrowers. An advantage of this procedure would be the possibility of eventually obtaining a larger capital fund than 5 per cent of the loans, and recent experience has demonstrated the need for this additional capital. If this method of financing were allowed, it would be necessary to use government capital at first to be retired with the capital contributions of the borrowers. It would likewise be desirable to establish the NFLA's as local independent cooperatives like the PCA's which would mean that the Federal land banks would be government-owned like the Federal intermediate credit banks.

The capital reserve payment in place of the 5 per cent stock would partially solve a problem of long standing, uniform interest rates. Under the proposed system, NFLA's in low risk areas would soon build up their required reserve and be in a position to pay back patronage dividends because of the small losses experienced. This reward for low losses and efficient management would stimulate interest and pride in the local NFLA just as it has in the PCA. NFLA's in high risk areas would in all probability need all their capital reserve payments to take care of losses. Any losses over and above the reserve payments in any association would not be assessed against the more efficient or low loss associations but would be assumed by the government which is the only agency able to take over the excessive high risks in certain sections of the country.

The small reserve payment would be in effect an insurance premium similar in some respects to the premium of the local mutual fire insurance association or to the premium paid with each interest payment on FHA loans. The insurance or reserve fund idea has an advantage over the stock idea in that it emphasizes the likelihood of a potential loss outside the control of the borrowers. Losses on stock, on the contrary, often suggest failure or mismanagement of the organization. Since most of the losses in NFLA's have been drouth and depression losses not foreseen and not caused by poor management, an insurance or reserve fund would appear to be better adapted to the cooperative credit system than the present stock plan.

In conclusion, four tests should be set up for an ideal credit system; adequate credit at all times, low competitive interest rates, well-integrated, non-duplicating, government-sponsored agencies, and loan terms including methods of payment adapted to the peculiar conditions in agriculture. Private agencies alone are not in a position to meet the tests of an ideal system, hence governmental assistance is necessary. As for changes in our present system, simplification of government-sponsored agencies is needed.

A regrouping of all government-sponsored agencies into three groups under one agricultural finance administration is recommended. These groups would be cooperative credit agencies, government land mortgage, and government reconstruction agencies.

In the cooperative credit system a desirable change would be a merger or centralization of management of the various corporations so that a unified NFLA-PCA service could be offered the farmer. Another desirable change to strengthen the cooperative system would be replacement of the 5 per cent stock purchase with a small reserve or insurance payment which would be included with each interest installment. The reserve payment would simplify the functioning of the cooperative credit units, would provide where needed for additional reserves above 5 per cent of outstanding loans, and, finally, would be better adapted to the main purpose of capital reserves, that of meeting unforeseen losses from crop disasters and price depressions.

USE OF THE NORMAL VALUE CONCEPT AS A STABILIZING INFLUENCE IN AGRICULTURE

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The value of land in the long run depends primarily upon its earning power and upon the interest rate. In the short run many forces are operative, within limits, in effecting departures from the long-term trend. It is the purpose of this paper to show that the normal value concept will have little if any effect in stabilizing values in the long run and that it may either stabilize or increase the magnitude of fluctuations in the short or intermediate period depending upon the intelligence with which it is used. In any case it is likely to remain a comparatively minor factor until the education of land buyers progresses far beyond the present level.

The problem of stabilizing land values is extremely difficult for the reason that value depends on earnings but responds with a substantial lag. Studies by Bean,¹ Chambers,² and Thomsen³ are in substantial agreement. About 50 per cent of the variation in land value is associated with prices of farm products or earnings in the current year. The remaining variation is explained by prices in the five preceding years or by anticipated earnings. Anticipated earnings are based on experience of the past six years. Bean has shown that on the average about three-fourths of the impact of price change takes place in two years and about five-sixths in three years. In all of these studies difficulty was encountered in explaining the divergence between actual and calculated prices after long periods of rising or falling prices. In the period 1933 to date, land values have failed to respond fully to increased earnings.

The interrelationship between returns from labor and returns from capital invested in land was shown in a recent study by A. B. Lewis.⁴ Lewis shows that the returns from labor and the returns from capital invested in land tend to be associated and that geographical variation is great for both. It seems probable that variations could also be expected among different periods in time at the same place.

Since land values merely reflect farm earnings, stabilization of

¹ L. H. Bean, Inflation and the price of land, *JOUR. FARM ECON.*, February, 1938.

² C. R. Chambers, Relation of land income to land value, U.S.D.A. bulletin No. 1124, June, 1924.

³ F. L. Thomsen, Factors affecting farm real estate values in the United States, *JOUR. FARM ECON.*, April, 1935.

⁴ A. B. Lewis, Land values and farm credit policy, *JOUR. FARM ECON.*, February, 1939.

farm earnings is the essence of the problem. Since earnings are dependent on prices and costs, the problem becomes finally one of stabilization of prices. Since in a progressive agricultural society, costs tend to fall relative to prices of products, earnings, including returns for land and labor, should increase with a stable price level. Certainly it would require more courage than this writer can muster to suggest a program for stabilizing farm earnings that would result in preventing farmers from sharing in the returns from technological progress. The returns from labor and management and the returns from land are so poorly differentiated that any restriction of one will almost inevitably result in the restriction of the other. With the increasing barriers to free population movement, the problem becomes more complex.

Suggestions for stabilizing returns from land have been offered many times and recently by J. D. Black in his discussion of "Land Tenure and the Social Control of Land Use" before the 1938 International Conference of Agricultural Economists. Dr. Black said: "Dr. Taylor's concern over speculative elements in land values leads me to remark that attitudes toward Henry George's essential philosophy have changed greatly since I was a graduate student under Drs. Taylor and Ely at Wisconsin. George's objection to scarcity values and insistence upon the need of control of such values bids fair, it would seem, to be accepted into our social system."⁵

If I interpret Dr. Black correctly, he would stabilize agricultural income by a system of benefit payments and taxation and such stabilization would be an essential phase of the whole program of production control, land use control and soil conservation. In such a situation the concept of normal agricultural value as it is interpreted by mortgage bankers and farmers would have little or no meaning.

Dr. Black's comment is a prophecy, a recommendation, or both. Coming from one who has played a major part in determining national agricultural policy it deserves careful consideration by students of land values.

Presumably by a process of selective taxation, values might be stabilized at normal, at present levels, or "scarcity" values might be gradually taxed away until only values representing "improvements" were left. It is difficult to see how competitive credit or, for that matter, competitive bidding for farm land could survive during the transition period. One cannot refrain from the comment that under present national land policies with broadening tax

⁵ J. D. Black, Proceedings of International Conference of Agricultural Economists, 1938, page 157.

bases, increased income and sales taxes, and growing agricultural bounties, we seem to be moving rapidly in the opposite direction at the present time in the United States.

Much confusion results from failure to differentiate between "normal value" and the methods by which it has been commonly calculated. Credit agencies have various definitions of normal value. Usually these definitions are quite specific and are related to the specific policies of the agency. Normal value in the more general sense refers, I think, to land values which are in equilibrium with expected costs and prices of products over a term of years roughly equal to the period of tenure of an owner or of the life of a long-term loan. Normal value is at such a level that land can be successfully passed from one generation to the next without serious inequities and that permits farmers to enjoy a level of income from labor and management that will be equal to incomes that may have been obtained in alternative occupations or investments.

The most common basis for estimating prospective earnings from land is and must be past experience. A study of past prices and costs offers about the only basis for forecasting probable prices and costs.

The principal elements in the problem are:

- (1) Prices of farm products
- (2) Prices of products used in production
- (3) Technological changes resulting in changing unit costs
- (4) Taxes
- (5) Interest rates

The difficulties of this problem are illustrated in the following tables in which items (2), (3), and (4) are held constant. The usual current procedure in appraisal when the capitalization method is used is employed in the calculations. For the ten-year period 1929 to 1938, records are available for an average of 263 farms in central Indiana. Approximately the same number and quality of farms were included each year.

The average earnings from these farms is no doubt well above the average for the area which results in the calculated values being high. The variation in values calculated under different conditions is significant however, and is the purpose of the illustration.

The ten-year average land use on these farms is shown in table 1. Average prices for the principal products for commonly used base periods are shown in table 2. The average normal value per acre when earnings are capitalized at various rates is shown in table 3. The standard crop share lease contract was used as a basis for allocating income and expense to the land. Earnings were obtained

TABLE 1. TEN-YEAR AVERAGE LAND USE ON CENTRAL INDIANA FARMS FOR THE PERIOD 1929 TO 1938. AN AVERAGE OF 263 FARMS WERE INCLUDED EACH YEAR

	Acres	Yield per acre	Total production
Corn*	62	47 bu.	2914 bu.
Wheat*	26	21.6 bu.	562 bu.
Oats*	24	32.8 bu.	787 bu.
Soybeans*	13	20.3 bu.	264 bu.
Alfalfa hay	6	2.2 ton	13.4 ton
Clover hay	8	1.2 ton	9.9 ton
Rotation pasture	22		
Open permanent pasture	16		
Woods pasture	12		
Woods not pastured	3		
Roads, lots, waste	8		
TOTAL	200		

* Includes miscellaneous crops equivalent to 5 acres corn, 2 acres wheat, 2 acres oats and 1 acre soybeans.

TABLE 2. AVERAGE MONTHLY INDIANA FARM PRICES FOR PRINCIPAL CROPS FOR VARIOUS BASE PERIODS, 1909 TO 1938

	Average of monthly prices			
	Five years		Ten years	Thirty years
	1910-14	1924-28	1929-38	1909-38
Corn, per bu.	\$.58	\$.80	\$.60	\$.74
Wheat, per bu.	.94	1.36	.81	1.17
Oats, per bu.	.38	.42	.31	.41
Soybeans, per bu.*	.99	1.36	1.02	1.26
Hay, per ton	13.66	12.70	9.29	12.54
Pasture, per acre	4.97	4.62	3.38	4.55

* Soybeans are a new crop. Prices for the period 1929-38 are actual prices. Prior to 1929 prices used are based on corn prices. The ratio between corn prices and soybean prices for the period 1929-38 was used as a basis for making the estimates.

TABLE 3. CALCULATED NORMAL VALUE PER ACRE OF CENTRAL INDIANA FARMS BASED ON VARIOUS PRICE BASE PERIODS AND RATES OF CAPITALIZATION

Base period	Value per acre with earnings capitalized at			
	3%	4%	5%	6%
1910-14	\$192	\$144	\$115	\$ 96
1924-28	270	203	162	135
1929-38	165	124	99	83
1909-38	244	183	146	122

by multiplying the landlord's share by the average price. The expense is based on the landlord's share of actual average annual expense for the ten years 1929 to 1938 as follows: improvements, including depreciation, \$223; taxes, \$288; fertilizer, \$37; other crop expense, \$72. The average annual total expense was \$620 per farm. Using these data, normal agricultural values were obtained ranging from \$83 per acre to \$270 per acre as shown in table 3.

Many studies have shown that the prices received for products tend to follow the general price level while the index of costs follows it only in a general way, with a substantial lag. Technological changes have generally affected costs and cost factors more than they have yields and gross income. Taxes on real estate are almost impossible to forecast and are usually greatly affected by individual community developments. In the period from 1929 to 1938 the taxes per farm, in the study reported, varied from \$443 in 1929 to \$232 in 1933. In 1938 government conservation payments were in excess of all direct taxes but these again were not included nor can their incidence on land values be adequately appraised.

The rate at which earnings are capitalized by the market in establishing land values probably varies within as wide limits as the rates assumed in table 3. Rates at which earnings are capitalized by the market vary widely geographically, and only a few of the reasons for these variations are known. Most studies have shown that good productive land is capitalized by the market at a higher rate than is poor land while theoretically one might expect the reverse. In areas that are over populated, earnings are often capitalized at a lower rate than they are in other areas. Old established areas well supplied with capital theoretically should have a market price for land based upon a low rate of capitalization. There is some doubt whether this is in fact generally true.

The discrepancies between actual and calculated land values noted by Bean took place after several years of rising or falling values. The explanation of these discrepancies probably is found in the changes in the rate of capitalization. For the period from 1929 to 1938, Bean noted that the index of calculated values was as much as 20 per cent greater than actual values. In this period, uncertainty and insecurity result in reluctance of farmers to make long-term investments in land with the result that earnings on equities rose at the time that mortgage rates were falling. Under these conditions equity capital is scarce and burdensome supplies of farm real estate encumber the market. After long periods of rising values the opposite results take place. According to the best

evidence available, the basis on which the market has capitalized farm earnings has varied in Central Indiana from around four per cent to around six per cent during the thirty-year period 1909 to 1938.

This factor alone would account for fluctuations in "normal value" of as much as 50 per cent unless we assume also a "normal rate of capitalization." This "normal rate of capitalization" as previously noted is difficult or impossible to determine with any degree of accuracy since it undoubtedly varies between areas and from time to time in the same area. This, I think, offers an extremely fruitful field for research.

In the Indiana study previously reported, the actual ten year average value reported by the farmers was \$82 per acre. In table 3 the value obtained was \$83 when earnings were capitalized at six per cent. Bean's study showed that during this period the estimated value was about 15 per cent higher on the average than the actual value. If the actual value for the farms in Central Indiana is adjusted to account for the discrepancy reported by Bean, an estimated value for the period of \$95 per acre is obtained. According to Table 3 this is approximately the value obtained when earnings were capitalized at five per cent.

The study presented here is inconclusive. The purpose has been to point out the possibility of further research by the use of price data and accounting data drawn from studies extending over a period of years. Price studies alone cannot be depended upon to yield much more when used alone since the rapid change in costs associated with changing technology can be measured only through accounting of some kind.

Government credit, broadening of the tax base, government subsidies, farm relief, and poor relief have all introduced confusing elements into the problem of land valuation. The effect of most of these innovations has been to support land values in poor farming areas and on poor farms at levels above those that would be expected based on the earning power of land without these subsidies.

The concept of normal agricultural value is an extremely useful one. It seems likely to serve its greatest usefulness as an educational device for creditors and farmers. Stabilization of land values may be effected by the slow process of education. As creditors and land buyers learn more about the variation in the productive power of land in their communities or lending areas and as they learn to calculate values on earning power for longer periods, many of the excesses in land speculation should be avoided.

Education in land valuation based on prospective earning power

has much in common with education in "Outlook." The methods in both instances are directed towards effecting stabilization through intelligent uncontrolled action by individuals.

If credit agencies generally adapt their lending policies to "normal values" their action will no doubt prevent some of the excess and perhaps smooth out some of the fluctuation in land values in the short run. Since the farm mortgage debt is only about 25 per cent of the total value of farm property the opportunity to effect values by lending policy is obviously limited. It appears doubtful that any credit agency can long continue to affect values in a period of steadily rising or falling farm earnings. After all "normal value" is only valid to the extent that it accurately forecasts farm earnings.

DISCUSSION BY F. F. HILL

Farm Credit Administration

I have no comment to make upon the first part of Dr. Murray's paper, which deals primarily with those characteristics of the farming industry that makes necessary a specialized credit service to meet its needs.

In the second part of his paper, Dr. Murray suggests the need for simplification and for greater unification of governmental and governmentally-sponsored credit services and goes on to suggest a possible regrouping of existing agencies and services to that end. As I understand it, he would establish a general supervisory and coordinating agency under some such name as the "agricultural finance administration." Under this agency, existing agencies and services would be grouped as follows:

(1) Cooperative credit agencies which presumably would include the Federal land bank system, the production credit system (including the intermediate credit banks), and the banks for cooperatives.

(2) Government farm mortgage credit, which would include the Federal Farm Mortgage Corporation and Bankhead-Jones loans.

(3) Rehabilitation credit, which presumably would include crop and feed loans, drought-relief loans, and rehabilitation loans made by FSA, as well as FSA grants.

It seems to me that the distinction between credit extended by cooperative credit agencies intended to be largely or wholly self-supporting and agencies making loans from Federal funds of a type which involves either high risk or extremely high administrative and supervisory costs (or both high risk and high costs) is both valid and important. In this connection, however, I would set up two groups instead of three. I see little difference, from a credit or administrative standpoint, between a long-term Bankhead-Jones loan made to assist a tenant in acquiring title to a farm and a one-year or five-year rehabilitation loan to the same tenant to provide working capital. I would therefore classify Bankhead-Jones loans as rehabilitation credit.

Land Bank Commissioner loans (held by the Federal Farm Mortgage Corporation) are admittedly a little more difficult of classification. They are government loans. Many of them are second mortgage loans. They may be made in amounts up to 75 per cent of the appraised value of the farm, which means that more "problem cases," requiring special treatment and work-out arrangements of one kind and another, are certain to develop than in the case of Federal land bank loans. From a theoretical standpoint, therefore, they might be thrown into the "rehabilitation" group.

To do this, however, would in my judgment be taking a step away from instead of toward simplification, if such loans were to be administered by an agency other than the Federal land banks. In my opinion, the individual farmer is not so much concerned with the number of corporations or the mechanics of the credit system as he is with matters of personal convenience. When he goes into a commercial bank with a commercial department, a savings department, and a trust department, I doubt if he cares much whether the three units are in reality departments of a single corporation or whether they are three corporations. The thing he is concerned about is his ability to obtain all three types of service from three windows in the same office, rather than having to go to three different buildings in the same town or worse still to three different towns.

At the present time, a borrower with a Federal land bank first mortgage loan and a Land Bank Commissioner second mortgage loan obtains both loans through the same organization, and has both loans serviced by a single organization, which is particularly important if he gets into financial difficulties. From the borrower's standpoint, such an arrangement would appear to be preferable to separate set-ups.

Time does not permit of a detailed discussion of the problems which inevitably arise in connection with the administration of so-called "split lines" of credit. All of these problems would be involved if the administration of Land Bank Commissioner loans were separated from the administration of Federal land bank loans. In my opinion, the problem of trying to administer a large group of second mortgage Commissioner loans separate from the corresponding Federal land bank first mortgage loans would be such that eventually the decision would be reached to have the Land Bank Commissioner make the whole loan—a first mortgage loan—in every instance where the Federal land bank could not fully meet the borrower's requirements. The implications of this from a fiscal standpoint, as well as from the standpoint of the cooperative credit system, are at once apparent.

While it is true that the Land Bank Commissioner loans are made from Government funds and represent "fuller loans" than are ordinarily considered safe for a self-supporting financial institution, the Corporation has a wider margin than the Federal land banks to absorb higher operating expenses and losses. Given a reasonable break in terms of farm prices, the Corporation should be able to "pay out" without calling upon the Federal Treasury to make good its guarantee of Corporation bonds.

Primarily from the standpoint of the borrower's convenience but for

these other reasons as well I would group the Federal Farm Mortgage Corporation with the Cooperative or Self-Supporting group of credit institutions.

Having grouped the agencies into two groups, I would keep them separate and under separate Federal administrative bodies rather than put them together under a single "agricultural finance administration." Several years' experience in trying to keep straight, in the minds of farmers, investors, and the public generally, the distinction between emergency crop and feed loans, drought loans, and similar types of emergency and rehabilitation credit and credit extended by the self-supporting cooperative units of the Farm Credit Administration leads me to the conclusion that it is almost a hopeless task.

In my judgment, the answer is to separate them—separate them both in Washington and in the field. Let the self-supporting system take care of all or none of the farmer's long-term credit needs. The same applies to his production credit needs. There is no reason why, however, that in individual instances his long-term credit needs might not be met by one agency and his production credit needs by the other.

All rehabilitation loans should be made out of a single office in the field. Likewise, the ultimate goal should be to have both production credit and Federal land bank loans available through a single office—one place for the farmer to go to obtain both his long-term and short-term credit needs. This has been the goal of the Farm Credit Administration. Progress has been slow for reasons which we cannot discuss here for lack of time. Suffice it to say that a requisite to effective coordination and joint-housing of production credit associations and national farm loan associations has been the necessity of undertaking a comprehensive program for rehabilitating national farm loan associations which in itself is a big job, requiring time.

If and when national farm loan associations and production credit associations can be housed together, in my judgment many of the present "complications" will disappear. If a farmer can get long-term mortgage credit and production credit service in one office, I doubt if the mechanical set-up will prove an inhibiting factor. It might have been better if the system had been started some other way. If Topsy hadn't grown up as she did under the influences she was subject to, she might have been a more useful member of society. Once she had "grewed up," however, the problem of changing her, assumed different proportions. Time does not permit of a discussion of some of the difficulties—legal, financial, and organizational—that would be encountered in any attempt to effect a complete structural change in an organization such as the units which together comprise the FCA. I agree with Dr. Murray that the only excuse for the existence of such a system is to serve the individual and that it should be handy, convenient, and as simple and accessible as possible. However, I would tackle the problem by continuing to push for coordinated service at the farmer's end of the line through a joint-housing program for production credit associations and national farm loan associations to be carried out as fast as national farm loan associations can be rehabilitated to a point where there

is something to coordinate. I believe that the greatest progress can be made in the shortest time under such a program, rather than by undertaking at this late date basic structural changes which study will show to be more difficult than appearances might lead one to believe.

I would like to make one or two brief comments on the proposal for eliminating the capital stock requirement for national farm loan associations and substituting a one-quarter of one per cent reserve requirement, such reserve to be collected along with the farmer's annual interest payment, and excess earnings, if any, returned in the form of patronage dividends. Somewhat similar schemes have been discussed within the Federal land bank system over the past 10 years. Essentially they amount to widening the operating margin from 1 per cent to 1.25 per cent. However, Dr. Murray would eliminate the 5 per cent capital stock requirement whereas most other discussions have assumed retention of the capital stock feature.

A wider margin, with the payment of dividends which would then be possible, would be desirable from many angles. However, with the present pressure for low interest rates to borrowers, even to the extent of substantial Government subsidies to maintain rates at low levels, I do not believe it could be made to work. In my judgment, Congress would vote to eliminate the extra one-fourth of 1 per cent charge the first bad year following the establishment of such a system, or perhaps pass legislation whereby the Federal Treasury would pay the banks the one-fourth of 1 per cent instead of having the farmer do so, which would obviously make the system a Government set-up at one stroke of the pen. Before abandoning the capital stock idea, I would suggest that an attempt be made to obtain legislation providing for a 1.25 per cent spread, which would, I believe, accomplish most of what Dr. Murray has in mind from the standpoint of furthering the cooperative feature of the system. If the necessary authority can be obtained from Congress and if the system works, then will be time enough to eliminate the present capital stock requirement.

The suggestion that the Federal land banks become wholly Government-owned banks like the Federal intermediate credit banks is, I believe, a move in the wrong direction. Instead, I would like to see a move to make the credit banks cooperative in character through the sale of stock to production credit associations.

I have already taken more than my allotted time. As I see it, Dr. Murray and I agree upon the need for continuing to strive to develop a sound, self-supporting, cooperative credit system to meet the needs of that group of farmers who might be classified as the "self-help" group. We are also agreed upon the need for segregating this system from those agencies designed to serve groups who cannot presently meet the credit standards a self-supporting system must necessarily establish. Our differences are primarily differences in approach to the same problem.

As a last word, I cannot refrain from publicly acknowledging my gratitude to Dr. Murray for getting his completed paper to me several days before I had to comment upon it. I commend this to those of you who may be called upon to prepare papers in the future, including myself.

DISCUSSION BY CLAUDE L. BENNER

Vice-President, Continental American Life Insurance Company

While I have been requested to pay particular attention in my discussion to Professor Young's paper, I cannot resist raising a question or two in regard to Professor Murray's address.

He sets forth, in my opinion, quite adequately the four major requirements for an ideal farm credit system. I wish, however, that he had defined his terms a little more specifically. For instance, just what constitutes "adequate credit which should be provided the farmer at all times."

Does "adequate credit" necessarily mean a certain percentage of the sale price of a farm, no matter how often that farm changes hands and irrespective of its price? Does it mean the extension of credit so that sub-marginal land may be cultivated or that marginal farmers may stay in business? Or again, does it mean the extension of credit so that the intensive margins of cultivation of really good land can be pushed further in the production of such crops as cotton and wheat while at the same time the government is trying to reduce the output of these crops?

Likewise, I wish he had discussed a little further just what should be the limits to the extension of "rehabilitation credit." Does the adequate extension of such credit mean the continued extension year after year of credit to farmers who are cultivating land in semi-arid regions where there hasn't been a good crop in the past ten years?

Frankly, I am afraid that a good many of us are confused as to just what constitutes in the final analysis "adequate credit" and we wish that Professor Murray had explained the term a little more fully than merely to state, "Adequate credit presupposes the existence of at least some agency not actuated entirely by the profit motive because liberal extension of credit during a depression is not always possible by a private agency." No doubt this is true but the question still remains—What is adequate credit for even such a governmental agency? And until this term is defined somewhat more fully, I am afraid it will be difficult to do clear thinking on this phase of the problem.

We must be careful not to confuse what in many cases is in essence an agricultural subsidy given in the form of rehabilitated loans with the economic problem of providing adequate agricultural credit on a business basis. While Professor Murray is no doubt right that it will be a good thing to have the agencies giving all three types of credit under one control, nevertheless, I feel certain that he will agree with me that no good will accrue to agriculture nor to anyone else from confusing the purely business operations of the Federal Land Banks and the Intermediate Credit Banks with the so-called rehabilitation loans which in many cases I am afraid the experience of the past has shown to have been inadequately secured, and more in the nature of gifts than loans.

I find myself in complete accord with Professor Young when he states that the normal value concept, when defined as "land values which are in equilibrium with expected costs and prices of production over a term of years roughly equal to the period of tenure of an owner or of the life of a

long term loan," is not going to have any appreciable effect in stabilizing land values. After all, is it not quite obvious that if we begin our discussion of this problem of stabilizing land values as does Professor Young by stating that such values depend primarily upon the earning power of land and the interest rate—with earning power resultant largely from farm commodity prices—that a reasonable conclusion from this statement is that the problem of stabilizing land values is the problem of stabilizing our whole economic system. Certainly interest rates vary and I think few of us would deny that farm prices also are not very constant. Does it not follow, therefore, that there can not be any normal value for land unless we assume there is going to be normal interest rates and normal farm prices?

Of course, I suppose it is theoretically possible for a bureaucratic government staffed with a sufficient number of more or less omniscient economists to stabilize agricultural income by a system of benefit payments when farm prices are low and by taxation when farm prices are high so that the net result might be a more or less steady flow of agricultural income. Then, assuming that the rate of interest used for capitalization remains the same, we will get a more or less constant price for agricultural land. I doubt, however, that there are many people in this room who, after the experience of nearly eight years of New Deal agricultural policies, would be willing to have the farmer's liberty so restricted even to get such a result brought to pass.

As Professor Young indicates, the normal value concept for land is likely to find its greatest usefulness as an educational device for creditors in making loans. I, personally, know several life insurance companies which are adopting it at the present moment. The procedure being employed is somewhat as follows:

After land has been properly classified, the appraisers are determining values by allotting a certain amount of crops to be raised on a given farm and are taking what they deem to be reasonable prices for these crops—not necessarily the prevailing market prices—deducting from the gross income thereby derived what they deem reasonable expenses of production and after arriving at the net income, they are capitalizing this at a rate of interest of 4% or 5% and using the figure thus derived as a loaning value for the land. Here certainly is a scientific way of going about appraising farm land. As one charged with the duty of supervising appraisers, I know that appraisers using this method are applying a uniform rule and that if they are properly trained, it is not necessary to discount the values of one appraiser by ten per cent because he is optimistic by temperament and raise another's values by a like amount because he is inclined to be too conservative.

It must not be thought, however, as Prof. Young indicates, that valuations arrived at by this process may not be open to question because there always will be a difference of opinion about the proper rate of capitalization to be employed and likewise the assumptions about the commodity prices. It is also possible, of course, that the appraisers' assumptions as to the matter of yields may be too optimistic or conservative.

Whether or not we will find that ten years from now this method of ap-

praisal will give us more absolute or normal values than would the more or less haphazard method of appraisal of the past, which was mainly based on sale prices, remains to be seen, but it is fairly certain that this method of appraisal will provide an accurate base of differentiation between different properties.

Finally, it seems to me that the attempt to arrive at "normal value" by the method broadly outlined in Prof. Young's paper is an attempt to do in an economic test tube, as it were, what the farm real estate market does for itself—or at least what economists used to think it did. In his discussion of the capitalization rate, Prof. Young recognizes the many and complex factors which seem to modify the relationship between market values and earnings, that is, the capitalization rate. On the basis of what is known today, it may be dangerous for the appraiser or the theoretical student to assume that he is able to reproduce in his economic test tube the process by which the market fixes valuations. For one thing, I have noticed a tendency among those who become enamored of a particular method of arriving at normal values to consider that any discrepancies that may be observed between their results and market valuations are in the nature of abnormal disturbances rather than economic unknowns. Upon this point I can agree with Prof. Young in his implication that further research and study is needed.

Again, there is the question of how well the future can be judged by the past, a question which applies to this apparatus for arriving at a concept of normal value as well as to any other. Prof. Young's paper gives comparatively little attention to the matter of what price should be taken for farm products in calculating earnings and to the amount of fluctuation in "normal value" which may be introduced at this point. But price is the changeable element in the equation. Dr. Bean's study is essentially a study of the relation between land values and prices of farm products. But what price shall we take? A weighted average of prices in the five preceding years? To do so is to assume that that level of prices will continue.

In practice appraisal systems sometimes rest upon a long-term average of prices, or sometimes upon an arbitrarily selected price. The argument in favor of the latter course is that it provides an opportunity to give weight to the economic factors which promise to shape the course of future prices. For example, the price of cotton in the 1920's averaged 20 cents. But what significance does this have today, that it should be included in a concept of normal value? It merely means that under conditions that prevailed during the 1920's a price of 20 cents was sufficient to induce producers to bring to the market an adequate supply of cotton to meet domestic and foreign demands. Today, a price of 8 or 9 cents seems adequate for the same purpose. My point is that it is impossible to estimate prospective earnings without making certain assumptions about the forces that will control the markets for agricultural products; and if a long-term average price is used, it should be scrutinized carefully to see if it still applies.

Prof. Young makes also a few minor points which may deserve passing comment. It is interesting to note that Government payments exceeded

Government taxes. (The Government giveth and the Government taketh away, blessed be the name of the Government.) I think a little research would establish the fact that while all this was true in the better sections of the country, it was not true in the poorer sections and therefore would complicate somewhat the problem of taxing away scarcity values should one want to do that. The concluding statement points out that lending policy has a limited effect upon values which is broadly true; nevertheless, there is great variation among sections of the country in this respect.

Finally, Prof. Young's discussion of the capitalization rate only indirectly refers to an interesting fact which I believe is very widely recognized among students of land values—that is, in the older agricultural sections of the East (and in England and France, I understand) that there seems to be a concept based upon the idea of what is fair or customary value and which has comparatively little relationship to earning capacity—at least much less relationship than in those sections of the midwest and south where agriculture is carried on a more business-like basis. While it is true that land changes hands very slowly in these eastern communities, the mere fact that many owners hold for a price above the value on an earning basis seems to restrict the supply coming out on the market and probably affects its price the same as restricted supply of any other commodity affects price. There is a time dimension to this land value problem which involves the rapidity of sale, rate of turn-over, or whatever other measure you may wish to employ of activity in the real estate market. So far as I know, economic theorists have never paid any particular attention to this peculiarity other than to recognize that the land market is not well “organized”; the courts of course have distinguished value at forced sale from other “fair” values. But every real estate man knows that property has one value when it is shoved on to the market and another one when held until the right buyer comes along.

A decade or more ago economic literature was infused with the idea that land values, which could not be accounted for wholly on an earning basis, contained an element representing the expected future increment based upon a projection of the past. Now the emphasis is strongly upon earnings; I suppose if some revolutionary new technology such as the production of all textiles from inorganic raw material should develop so as to bring about further retraction of the agricultural margin, the resulting distress and competition for survival might depress land values to the extent that we would have to take into account an expected future decrement.

Alluring as the concept of normal land values no doubt is, and freely admitting the benefits that would accrue if it were possible to stabilize land values, nevertheless, I am afraid that they are as impossible of attainment as is the ever normal granary, constant temperature or even rain fall.

CHANGING ORGANIZATION OF AGRICULTURAL MARKETS

A. C. HOFFMAN

Bureau of Agricultural Economics

It is probably correct to say that the organization of agricultural markets has changed more in the last 25 years than during the preceding century. What has happened is the application of large-scale methods to food distribution. From a system comprised almost wholly of small, functionally-specialized business enterprises there has been a transition to vertically-integrated concerns operating on a regional and even a national basis. Examples of this development are the large corporate chains, the big dairy companies, the flour-milling and baking concerns and organizations such as Standard Brands and the General Foods Corporation, to name only a few of the outstanding ones. The rise of such concerns is the more remarkable because it has occurred in a field of enterprise not hitherto thought well adapted to the application of large-scale methods.

In this paper I shall try to describe these developments briefly and to indicate some of the principles which seem to underlie them. I may make some statements which are somewhat conjectural and for which I have no basis other than my own opinion. But I think I can reasonably plead that the bulletins and researches of our profession do not yet provide many relevant facts with respect to large-scale food distribution which enable one to do much more than this.

The most interesting and, in many ways, the most significant development in the food industries has been the growth of mass retailing. I shall devote a considerable part of my paper to this because it best illustrates some of the principles and problems of large-scale marketing. Mass retailing has taken several forms chief of which is the corporate grocery chain. It has also expressed itself in the organization of independent retailers into voluntary and cooperative groups. There are points of resemblance in these two developments, but also important points of difference.

The origin of the corporate grocery chain in this country dates back to the founding of the Great Atlantic and Pacific Tea Company in 1857. But not until the 20th century did any of the chains achieve sizable proportions and only since the World War have they risen to their present position. The decade of the 1920's was the period of most rapid expansion for the grocery chains, as well as for most other types of large-scale food concerns. In this short

period the combined annual sales of the five leading systems increased from around 400 million dollars to nearly 3 billion dollars. The largest single system, the A. & P., has annual sales approximating a billion dollars, or approximately 10 per cent of all food sales made through grocery and combination stores. The onset of the depression in 1930 brought expansion of chain stores temporarily to a halt, their position with respect to that of the independents having remained relatively unchanged since that time. There are those willing to venture the prediction that further chain store growth is more or less permanently at an end; but I am not so sure about this, assuming, of course, that legislative measures do not intervene.

The organization of independent retailers into voluntary and cooperative chains is a more recent development. The American Institute of Food Distribution estimated that in 1936 about 100,000 independent grocers, or one-third of the total number, were affiliated with organizations of this kind. However, it would be incorrect to infer from these figures that mass retailing methods similar to those of the corporate chains are being applied by one-third of all independent retailers. Some of the cooperative groups do centralized buying and provide their members with services similar to those of the corporate chains, whereas others do little more than provide a common name. The important difference between the cooperative and the corporate chain turns on the degree to which the management of the retail store is centralized. Obviously the corporate chains have more of whatever advantages or disadvantages lie in centralized store control.

Another important and recent development in food retailing is the so-called super market, a retail food unit doing an annual business of at least \$250,000, with emphasis on self service and low cost store operation. The super market idea was developed early in the depression by a new set of mass merchandizers, but some of the older corporate chains were quick to take it up and since have been rapidly converting many of their regular stores into markets of this type. In a sense the super market represents a change in the type of retail store rather than a change in ownership structure. But it probably has done more to change the mechanics of retailing than anything since the emergence of the corporate chains themselves.

The grocery chains are commonly thought of only in connection with the retailing of food products. Their enterprises, however, reach back into nearly all phases of food processing and distribution; and, in many cases, they span the gap between producer and consumer.

Nearly all the chains, including most of the smaller ones, have integrated the function of wholesaling with that of retailing. The big chains have gone much farther than this. Several of them, for example, have subsidiaries for providing their retail units with fruits and vegetables, an increasing proportion of which they are buying direct from growers and shippers at country points rather than from handlers in the terminal wholesale markets. Especially noteworthy has been the entrance of the chains into the field of dairy manufacturing and distribution. A number of the leading systems operate plants in producing sections for the manufacture of condensed and evaporated milk, and purchase a considerable part of their butter and cheese direct from local creameries and cheese factories. Other chain store enterprises include the operation of bakeries, canneries, meat warehouses, and miscellaneous food processing establishments. The trend toward vertical integration on the part of the chains was temporarily arrested by the depression, but this trend seems to be a natural concomitant of mass retailing and we shall probably see more rather than less of it in the future.

It is self evident that mass retailing has meant a change in the actual mechanics of food handling. It simply is not true, as some of the older text books used to have it, that large-scale marketing is a merely a taking over of the functions formerly performed by small enterprisers and their performance by big ones in substantially the same way.

No inconsiderable part of any advantages which mass retailing may have had from the standpoint of efficiency will be found to turn on centralization of management. To illustrate, the detailed system of records and accounts in use by most of the chains enables them to detect inefficiency and compare performance in every store unit of the system; and, what is equally important, centralized control enables them to do something about it. Some degree of centralization of control is necessary if we are to discover and apply widely throughout our marketing economy the principles of scientific management. Another term for this is economic regimentation and there are many things about this which none of us like. But perhaps this is part of the price we shall have to pay if efficiency is what we really want.

Offsetting the advantages of centralized management are the lack of individual incentive and the difficulties of coordinating large enterprises. These are the considerations which have led to the widely accepted assumption that management is subject to the law of diminishing returns and is the ultimate limiting factor to the size of business enterprise. But curiously enough, the difficulties

of large-scale management appear to have weighed more heavily in the minds of economists than of business men who have gone about the task of organizing larger and larger enterprises in spite of our economic laws. In our preoccupation with the law of diminishing returns as applied to management, it is possible that as economists we may have neglected the importance of the principle of division of labor as applied to this function.

Another highly important aspect of large-scale organization from the standpoint of efficiency is the integration of successive marketing functions within a single firm. In the regular channels of food distribution, the commodity moves from producer to consumer by a series of bargaining transactions and ownership transfers. It is the function of the specialized middleman (that is, the broker, the salesman, and the commission man) to effectuate these transfers. In contrast to this, the commodity moves within a vertically integrated concern in accordance with the needs and capacities of its various parts and without any element of selling costs per se until the point of final transfer to the consumer. This does not mean that the integrated concern has no compensating costs. In some instances these costs may be as high or higher than those of the regular channels. My point is only that there is a difference in the physical mechanics of the marketing process under the two systems, and I venture to say that the difference in terms of the labor and capital required per unit of time and place utility is greater than is commonly thought.

Interwoven with the rise of mass distribution is the problem of monopoly and imperfect competition. The astonishing growth of the chains has led many to wonder whether we now have, or are ever likely to have, anything approaching monopoly in this field. In the controversy surrounding this question there seems to be some confusion of thought as to just what the essence of monopoly is, and how to recognize it when we see it.

The nearest thing to a retail monopoly we ever had in this country was the village grocery store. It is not always recognized as such because we commonly think of monopoly only in connection with big business. But the village store nevertheless had monopoly elements, and for the simple reason that the shopping choices of its customers were limited by the cruising radius of a horse and buggy or by the legs of little boys whose job it was to fetch the groceries. If we think of retail competition in terms of the number of stores available to the average consumer, then we have far more of competition today than we have ever had in the past simply because of the automobile.

The growth of the chain store of course involves more than the

problem of local neighborhood competition. What the public wants to know is whether it has led to narrower and more flexible marketing margins or to wider and more rigid ones.

The two criteria most commonly used by the Federal Trade Commission and other regulatory bodies to detect the existence of imperfect competition are (1) concentration of control and (2) a higher-than-average rate of profit. But neither of these things is important in itself. The real problem of monopoly is whether or not it results in higher prices or wider margins than would exist under competition.¹ And I submit that the answer to this problem is not found in statistics showing that a few sellers control a large part of the supply, that they divide the market, or even that their profits are lucrative.

I am not unaware of the difficulties which confront public regulatory agencies and research workers when they are asked to determine whether a given line of industry is reasonably competitive or whether dissolution proceedings are in order. The economic theorist, I think, will have to admit that casting the problem in terms of marginal revenue and marginal cost isn't going to help much in establishing a provable case unless we can determine with reasonable precision what these are, and I'm not very sanguine that we shall ever be able to do this to our satisfaction. But at the same time, I think it is fair to say that the empirical approach to the matter ought to be little broader and more analytical than has sometimes been the case. Specifically, we might pay more attention to the difference in average costs under competition as compared with those of imperfect competition or monopoly. Certainly we are not justified in assuming that these are the same, as we tacitly do in most of our classroom diagrams of monopoly principles.

The limitations of the usual approach to monopoly in terms of concentration of control and profits may be illustrated by trying to apply it to the grocery chains. The rates of return on invested capital which they have made are among the highest to be found anywhere in the economy. As a matter of fact, some of the systems were built almost entirely out of profits and without the use of any capital from outside investors. This would appear to constitute *prima facie* evidence of monopoly, were it not for the fact that their rate of profit tended to decline steadily as their percentage of the total grocery business increased. Obviously these two criteria of monopoly power are not only inconsistent in this case, but they

¹ The best measure of this is probably that offered by A. P. Lerner in the *Review of Economic Studies*, 1 (3): 169. Lerner suggests the formula $\frac{P-C}{P}$, where P equals price and C is marginal cost.

tell us nothing with respect to the effect of the chains on prices and margins.

The chief explanation of the big profits made by the chains in the early stages of their development was that the independent retailer could not offer them the kind of competition needed to pass on to consumers all the gains of mass distribution. One might say that the early chains did have a monopoly, but it was a monopoly of a new technique of marketing rather than of the food supply. Not until they began to compete with each other on the basis of equal efficiency and bargaining power were their profits reduced to more normal levels.

This leads to the further observation that the public may not be fully protected against monopoly in retailing by the fact that the percentage of business done by the independents is maintained. The important thing to watch is the competition among the chains themselves. In this connection the organization of independent merchants into voluntary and cooperative groups has done much to increase the effectiveness of their competition.

It was stated that the real problem of monopoly lay in a raising of prices or a widening of margins above that which would obtain under competition. Obviously, however, this isn't what we are worrying about in the case of mass retailers, because the charges against them are not that their selling prices are too high but that they are too low. Public policy toward the mass distributor, as expressed through chain store taxes and resale price maintenance laws, is directed toward maintaining rather than reducing retail margins. Its objective is not to protect consumers against an immediate exercise of monopoly power, but to preserve economic individualism in the marketing field. This may be a good public policy, all factors considered. But so long as we follow it, we can't logically accuse the mass retailer of having contributed to wider marketing margins.

So far we have discussed only those large-scale developments which have taken place in the field of retailing. But changes of the same general kind have taken place in nearly all parts of the agricultural marketing system and I shall try to summarize them briefly.

In the meat packing industry, large-scale firms have been the predominant factor for many years. The post-war decade therefore did not witness the spectacular developments which occurred in other phases of food processing. Indeed, the big packers lost some ground during this period to the small interior packers that grew up during and immediately following the World War. The chief reason for this counter trend was the introduction of the motor

truck, although other factors were involved. Within the last 8 or 10 years, however, the swing has been slightly back toward greater centralization of control as the big packers have acquired ownership of the plants and facilities of some of the smaller ones.

Among the last of the food industries to develop corporate mass methods on a national scale has been the dairy industry. Sizable local companies had existed in this field for many years, but consolidation of these companies into larger concerns did not begin until the 1920's. In this industry, as elsewhere, large-scale developments have been accompanied by vertical integration both toward the producer and toward the consumer. The major part of the condensed and evaporated milk is manufactured by five or six large firms, including one of the grocery chains. Butter and cheese is still manufactured mainly in local independent or cooperative plants, although the process cheese industry is almost exclusively in the hands of three or four firms. In the case of fluid milk three firms distribute approximately 15 per cent of all milk consumed in cities and villages in the United States, although the percentages handled by the leading firms in the cities in which they have facilities are much higher than this.

The tendency of the large-scale dairy firms has been to displace the specialized middleman with their own assembling and selling facilities. Much of the butter and cheese which they handle is purchased direct from the local creameries and cheese factories, or from cooperatives. At the same time, they have sought to carry their products farther towards the consumer by establishing their own wholesale and jobbing agencies in consuming centers. An example of the latter development is furnished by the Kraft-Phenix Cheese Corporation, a subsidiary of the National Dairy Products Corporation, which has built a whole line of products around cheese in order to carry its business all the way to the retail store.

In flour milling and bread baking the changes have been equally striking. Here, too, they have come largely in the last 15 or 20 years. General Mills, largest of the flour milling concerns, was not incorporated until 1928. Combination in the bread baking industry got under way soon after 1900, but did not reach the holding-company stage until the 1920's. At the present time the three leading concerns in this field have just under 20 per cent of the total bread baking business, which is remarkable in a decentralized industry of this kind.

One of the few food processing industries in which concentration of control has not yet made much progress is that of vegetable canning. There are a number of national concerns in this field, but their enterprises are confined mainly to the special crops grown

on the West Coast, of which they control a large part. There still remain, however, some 2,000 independent fruit and vegetable canners, and they pack the major part of the staple canning crops.

Most of the foods made by special processes, such as breakfast cereals, jello and chocolate products are in the hands of large firms. Many of these items possess at least some degree of product differentiation, either as a result of patented processes or trade marks. Examples of imperfect competition in the food industries are, therefore, more likely to be found among these commodities than among the food staples.

Developments similar to those described above have taken place in nearly all branches of food processing and distribution. If space permitted, it would be interesting to look at them more closely. For some of the special agricultural crops, concentration of control is greater than for most of the staple farm products, although this often escapes public attention because the firms involved are not large in comparison with some of those we have been describing.

It should be pointed out also that large-scale marketing has not been confined altogether to the corporate form of business enterprise. There have been significant developments along this line among the agricultural marketing cooperatives, although not on such a vast scale as those among the private corporations. The general character of these cooperative developments is perhaps familiar to all of you and requires no further discussion here.

Despite the tremendous growth of food corporations in recent years, concentration of control in this field does not approach that found in certain other parts of the economy. For example, in the automobile industry the three leading firms control 90 per cent of the total output; in steel, 65 per cent; in gasoline, 58 per cent; in cigarette manufacture, 80 per cent; and in farm machinery, as much as 70 to 90 per cent for certain implements. Generally speaking, the small firm is still the major factor in most food lines, although obviously the atomistic structure of agricultural marketing no longer exists.

In thinking about the problem of monopolistic control in agricultural marketing we often tend to focus our attention on the size of the leading firms and the percentage of the national supply which they control. But the problem of local competition is fully as important, and in some instances may be even more so because it is here that the number of buyers is more likely to be limited with respect to the market area involved. In the case of canning crops, for example, the grower commonly has only one or two local plants with which he can deal. For certain crops grown in specialized areas of production, it not infrequently happens that one or two buyers

are the dominant factor in the local situation, so that sharp price repercussions are likely to occur if their buying support is temporarily withdrawn. The introduction of the motor truck has tended to prevent abuses in situations of this kind by increasing the number of local outlets available to the individual producer. Further protection along this line can perhaps best be given through the cooperative marketing movement.

Before concluding, I should like to digress briefly on some of the implications of large-scale marketing from the standpoint of economic theory. It will be found that some special problems are presented here which have not been adequately treated in the recent literature of imperfect competition.

In the ordinary theory of monopoly and imperfect competition, it is generally assumed that the monopolist has direct control over the volume of his output. But in the case of most food products, the volume is largely determined not by the distributor but by what farmers choose to produce and market at the price offered. What the food monopolist would control, then, is not the supply but the distributive margin, although he would of course influence supply through the price which he offered the farmer. This distinction is important in understanding the incidence of monopolistic control on farmers and consumers. If consumer demand is more elastic than farm supply, then the effect of food monopoly will be to reduce prices to farmers more than they are raised to consumers, and vice versa.

Another point of theory relates to the number of competing sellers. Our current theory of imperfect competition has been concerned mainly with a limited number of firms and with the concept of product differentiation, as it should be in analyzing the problem for most lines of industrial production. In the food industries, however, the situation is more likely to be one of a few large firms and a large number of small ones. Since the output of each of the small firms will have no appreciable effect on the price or margin it receives, their behavior will not be greatly different from that under atomistic competition. But this will not be true of the dominant firms. In the very nature of the case they reasonably may be expected to assume a position of price leadership, with the small firms adjusting to this leadership on the basis of competitive behavior. The extent to which the dominant firms will be in position to exercise monopolistic control over price will therefore be partly conditioned by the elasticity of the supply of foods or marketing services offered by the small firms.

Another characteristic peculiar to agricultural marketing is that

monopoly or imperfect competition might conceivably develop at any point in the marketing system, or at several of them simultaneously. A hypothetical example would be that of a processing monopolist who sold his entire output to another firm which had complete control of its distribution. An example not so far from reality is the fluid milk industry in which most of the milk supply in city markets is sold by a producers' bargaining association to a small group of distributors.

In such a situation, the outcome is not governed by the principles of horizontal duopoly, and it will differ depending upon the number of successive or vertical points of monopoly. Without entering into the details of the proof, I think it can be demonstrated that two successive monopolists, one above the other, will always tend to raise prices and limit output at least as much, and usually more, than a single monopolist combining both their functions. And paradoxical as it seems, the consumer would probably be helped rather than harmed by a conspiring between the two monopolistic groups to increase the amount of their total monopoly profit. I think it is not improbable in some instances that the efforts of fluid milk producers to raise their class I prices and those of distributors to widen their margins has resulted in a situation in which both groups fail to exact as much from consumers as they might have done by pursuing less aggressive tactics.

These are only a few of the special problems in agricultural marketing for the economic theorist to bite into. But I think they illustrate that there is plenty to be done in this field.

Mass distribution also has an important bearing upon the pricing of farm products, apart from any consideration of monopolistic control as such. I refer to its effect on the existing price mechanisms for agricultural products. The organized auctions and exchanges in which prices for most of these products are now made were evolved to fit the needs of a functionally-specialized marketing system. But the tendency toward direct marketing and vertical integration which is an inherent characteristic of large-scale organization has meant that an increasing proportion of our agricultural products is moving around rather than through these price making arenas. I am not suggesting that the present pricing institutions are doomed or that they are necessarily inadequate to the present situation. My point is that the problem of direct marketing and its effect on our price mechanisms grows out of large-scale organization and, therefore, should not be considered as a problem apart from its fundamental cause.

In summing up, what shall we say about corporate mass dis-

tribution in terms of the fundamental forces which lie back of it? With respect to this, there are two diametrically opposed schools of thought.

On the one hand are those who hold that this trend has no real basis either in operating efficiency or in the indivisibility of economic resources. Their contention is that the chief stimuli have been nothing more than bargaining advantages and a non-economic drive for business power.² If large-scale enterprises have tended to displace small ones it is, according to this view, only because the former have been in position to exact monopolistic prices. And for allowing them to do this, we must blame, in the words of Professor Fetter, "mistaken human laws, misinformed public opinion, and the limitations of public officials—legislative, judicial, and executive."³

The other view stems from the materialistic interpretation of economic and social development. It holds that business patterns are largely determined by such material factors as the mode of transportation, the facilities for communication, and the technology of production. Applied specifically to the food industries, this would mean that large-scale marketing is to be explained mainly in terms of the automobile, the motor truck, new techniques of food processing, and even of such seemingly unrelated innovations as the cash register and the adding machine which make it possible to extend the function of business management over a wider range and scope of activities.

If this latter view is accepted, and I think it is much more realistic than the first, then large-scale organization in marketing is as inherently a part of our modern economic system as mass production in industry.

² Cf. Geo. Stigler, The theory of imperfect competition. *JOUR. FARM ECON.*, XIX (3): 714-15.

³ Frank Fetter, Planning for totalitarian monopoly. *Jour. Pol. Econ.* February, 1937.

ECONOMIC SIGNIFICANCE OF CHANGES IN MARKET ORGANIZATION

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The real economic significance of any market change is determined by its ultimate influence upon volume and price—for both the primary product and the associated services of processing and distribution. Therefore the questions presented to research workers by the developments Mr. Hoffman¹ has described are not limited to any particular sub-field of agricultural economics. Insofar as they actually influence the functioning of a market, this influence is likely to extend backward to the first phases of production and forward to the consumer's apportionment of his expenditures among the various goods he consumes. Hence they present issues of interest to students of farm organization and management as well as to those of consumption economics. Similarly, they may have important bearing upon issues dealt with in such lines of specialized research as transportation, storage, insurance, and credit. However, these changes with which we are concerned relate directly to the character, organization, and operation of market agencies, and I shall confine my remarks for the most part to their bearing upon marketing research, although in doing this I recognize no hard and fast boundaries.

I

Performing the various services necessary in effecting transfer of farm products to the place, time, and form of final consumption is, obviously, a form of production. Its contribution to the total income of desired goods and services, and its costs in terms of the resources expended, depend upon the economy and efficiency with which resources are employed, just as in any other type of productive activity. This production is carried on by various processing and marketing agencies—including private, co-operative, and public enterprises. Hence any concern with the economic aspects of marketing as a production process must lead to an examination of the organization and operation of individual agencies. As a field of economic research Marketing Organization is analogous to that of Farm Organization and Management.

But the ultimate economic significance of a change in marketing is not determined solely by its influence upon costs and efficiency. It depends also upon the promptness and precision with which this

¹ See the paper by Hoffman in this issue of *THE JOURNAL*.

influence is reflected in the prices of marketing and processing services—that is, in the charges established—and how these charges affect volume and price adjustments at all stages from farm to consumer. Hence, in order to consider the problems raised by Mr. Hoffman's paper, it is necessary to examine the bearing of combination and integration upon marketing as a process of exchange—a process in which prices are established.

From this point of view, a market is a highly complex mechanism through which economic forces operate in determining price. On the supply side, such forces arise out of cost conditions. But back of these are circumstances pertaining to other lines of production which affect the price of cost factors by competing for their use, as well as considerations relating to technological and organizational efficiency. Moreover, the influence of cost conditions upon supply is modified by the character of producer responses, and these are conditioned upon the extent of their control; that is, by their competitive position. Likewise, on the demand side, price forces have their origins in consumer desires for the final product, including the associated services of processing and distribution. Again, these are modified by circumstances with respect to income, availability of substitutes, and the extent or character of the selling efforts directed at consumer purchasers. The character of all these considerations and the pattern of their interactions determine the economic structure of a market.

If the price mechanism is sensitive and accurate in its response, there is a minimum of friction to impede the operation of competitive forces or cause lags in their adjustment, and the terms of each exchange transaction represent the resultant of all relevant considerations. Under these circumstances, the fundamental structure of the market is accurately reflected in a corresponding structure of prices. By this price structure I mean not only the prices received by producers and those paid by consumers but also the spreads and charges taken by handling and processing agencies, geographic differentials, relations between different points in time, and differentials among competing products, including different qualities of the same commodity.²

On the other hand, a market may be quite deficient in its pricing of goods and services. As a result, prices to consumers may be out of line with fundamental supply conditions, with corresponding effects upon consumption. Such defects may result also in prices to farmers which inaccurately reflect consumer demand, or may result in an inequitable distribution of returns among producers

² An early discussion of this point of view is contained in E. G. Nourse, *Normal price as a market concept*, *Quar. Jour. Econ.*, pp. 632-651, August, 1919.

in different localities, thereby causing uneconomical shifts of production. Similarly, prices to either producers or consumers may fail to reflect differences in quality of products and grades of service. Hence changes in the organization of a market may have significance because of their influence upon particular charges or differentials in the price structure as well as because of an influence upon the level of price.

Among persons unfamiliar with agricultural markets, it is not uncommonly assumed that here, if in no other area of economic activity, prices are established through the free play of competitive forces in an environment approximating that of the perfect market. Those who are familiar with actual conditions in these markets know how unrealistic it may be to proceed on such an assumption. True, agricultural production is carried on by atomistic producing units and, at least prior to the inauguration of adjustment programs, there have been few restrictions upon competition among them for the use of productive resources. Beyond this, however, the actual situation frequently has been quite different from the competitive ideal. This was true even before the days of public intervention through stabilization purchases, surplus removal activities, regulation under marketing agreements or orders, and price-supporting commodity loans.

The evidences of unsatisfactory pricing are apparent in the history of co-operative marketing. Many associations represent farmers' efforts to overcome deficiencies in the existing marketing machinery—deficiencies which produced such results as unsatisfactory service, inefficient operation with corresponding high costs, and failure to reflect actual quality differences in prices returned to producers. Others have sought to nullify elements of monopoly control previously exploited by market agencies ranging from purely local units to others operating on an almost market-wide scale. For example, local livestock shipping associations and co-operative grain elevators have been organized to compete with buyers who enjoyed a degree of local monopoly, perhaps because of their ability to obtain advance information from the terminal market or because of understandings with buyers in adjacent localities. On the other hand, the farmers' elevator movement developed into an attack on control over a much larger area in the market when it encountered the restrictionist policies of line elevators and terminal grain companies. For a number of commodities the conditions under which supplies enter the market have been significantly affected by the organization of co-operative marketing associations which sought a strong centralized control in the interest of obtaining a monopoly gain. The fact that they may have

failed to achieve this goal does not mean that they have had no influence.

Any student of agricultural marketing could list additional evidence of undesirable pricing of marketing services or of the products themselves. But the compilation of such a list is not my purpose. This discussion is concerned with research problems of analyzing the significance of changes in marketing organization such as Mr. Hoffman has described. By calling attention to evidence of existing limitations upon the competitive process in agricultural markets, I merely wish to make the point that in studying the influence of these changes upon the pricing mechanism we must start by recognizing that they appear as changes in markets which already depart widely from the competitive ideal. Competitive forces arising out of basic economic considerations on both the supply and the demand side of these markets do enter into the determination of price structures. But to varying degrees elements of monopoly are present also, owing to the control exercised by particular agencies. Moreover, the influence of all these forces upon price is modified by the ways in which business is conducted—that is, by all the institutional arrangements, including customs, which characterize the particular market. Unless we recognize this at the outset, we are unlikely to arrive at any very reliable conclusions with respect to the significance of concentration and integration in processing and distributing farm products.

These brief observations regarding the structure and functioning of a market as a price mechanism, also suggest the general types of study which must be undertaken if we are to appraise the influence of large-scale organization upon the price structure in agricultural markets. First of all, we need to know their effects upon cost and efficiency in the production of the necessary services. Second, we must analyze the extent to which the observed trends toward large-scale operation change the limits of the control exercised at the different stages in marketing and how this control is used. Such analysis centers upon the production and price policies of the new agencies. Finally, we must examine their influence upon the promptness and precision of exchange mechanisms through which business is conducted in registering the force of all economic considerations in the prices actually established.

II

Probably no development can be mentioned that has had more obvious influences upon the production aspects of marketing farm products than has the development of large-scale units in processing

and distribution. With the trend towards concentration and integration, channels of distribution have been altered, steps in the former process have been by-passed, old services have been discontinued and new ones added, and marketing practices have changed.

So far as it is concerned with this aspect of marketing, the task presented to the marketing researcher is not changed in any fundamental way by the development of mass distribution. True, the agencies to be studied may be much larger and more complex in their organization than were those which they supplanted, but the job of the researcher is still one of ascertaining the organization and operation of market agencies which will furnish the desired marketing services with a minimum expenditure of resources. In order to do this he needs information which will enable him to estimate the approximate costs that would be incurred by possible alternative operating set-ups at different levels of volume, and by alternative systems of marketing.

The question as to the probable adequacy of our research programs in furnishing this information is not easily answered. In the past, two types of study have been emphasized. One has been the detailed descriptive analysis of the existing marketing arrangements, including the types of agencies, their methods of operation, prevalent marketing practices, and established market customs and institutions. In furnishing the knowledge of existing arrangements which is essential if research workers are to be able to plan effective projects of a more analytical nature, these studies have been and continue to be important. Moreover, in some instances they have led to proposals which resulted in marketing improvements of considerable value. More work of this type is needed if we are to keep pace with changes such as those outlined here today. But it should be recognized that the greatest value of such research is in furnishing a basis for further study rather than in contributing directly to the achievement of efficiency in marketing.

The other approach most extensively developed has been the study of comparative costs under existing arrangements. It is probably safe to conclude that the greatest value of most of these studies has been in furnishing a comparison of efficiency for different set-ups already being used, although preoccupation with monetary costs has oftentimes limited this value. Examination of the methods used and a consideration of the problems involved in determining the costs for any particular agency suggests that they have not been nearly so successful in determining the absolute level of costs. If this is correct, then it seems to me unfortunate in at least some instances that the resulting averages have been used as a basis

for determining market charges, as for example in the regulation of resale prices by milk control boards.

More important than this, however, is that studies of unit cost can furnish a basis for arriving at improvements in the direction of efficiency only within limits set by present practice. Even if we grant that they can compare two systems of operation already in use, they still can tell us little as to what would be the costs under some quite different alternative arrangements not yet in actual use. We need information that will enable us to estimate the influence of a particular change in organization or operation in raising or lowering costs, and even the most careful cost accounting does not do this adequately.

For the purpose of shedding light upon questions of public policy in the regulation of marketing or its reorganization in the interest of still greater efficiency, it seems to me that more promise is offered by the so-called budget-estimate type of analysis. As developed over a period of years by some workers in the field of farm organization and more recently applied to a few problems of market organization, this approach involves essentially the procedure of designing new alternative systems and constructing careful estimates of the costs which would be incurred in their operation.³ Of course, such estimates are based in part upon past experience; therefore continued analyses of that experience are required. But they also make use of data supplied by engineers and other technical specialists which are generally more reliable in indicating the result to be expected under a wholly new operating set-up than are data on the costs incurred by present units. On the whole, it seems to me that this general procedure has shown its value as applied to farm management research. Also, I believe that its advantages over the cost analysis are likely to be even greater in the study of marketing organization. For one thing, the difficulties of cost studies are typically greater here than for most farms, whereas in many instances the technical data required for developing a synthetic estimate are more readily available than they would be in evaluating a particular system of farming.

III

The second type of information we need bears upon the extent to which the observed trends toward combination and integration

³ The synthetic or budget analysis is discussed briefly in Research in marketing farm products (Bul. 7, Scope and Method Series, Soc. Sci. Res. Council). The most elaborate application of the synthetic method which has come to my attention was made for the Milwaukee Milk Market. Its results are summarized in AAA, A survey of milk marketing in Milwaukee (DM-1, Marketing Information Series, AAA).

have changed the limits and character of the control over pricing exercised by individual market agencies. As I have indicated, obtaining this information necessitates analysis of the price and production policies of large-scale enterprise in the processing and marketing of agricultural commodities.

In recent economic discussions, much attention has been given to the problems in this type of research and to its potential importance as a basis for sound public policy. Although most of these discussions have been concerned with policies in non-agricultural lines—in fact, it is not uncommon to find in them references to agriculture as typifying the conditions to which they do not apply—they deal with concepts and problems that may be of major importance in connection with our present topic. A particularly stimulating and provocative discussion of this general topic as it applies to agricultural marketing was presented, at the round table held by the Marketing Research Committee last year, by W. H. Nichols in a paper entitled “Suggested Approach to a Research Problem in the Price and Production Policies of a Farm Industry.” (Not published.) Obviously it is not possible to consider here the possible contributions toward the improvement of their research which workers in this field may obtain from these discussions. All I can do is to summarize briefly my own views as to the kind of study which is likely to be most productive.

It is difficult to approach this phase of our discussion without considering the probable adequacy of the approach to an analysis of price policies yielded by general theory, including that relating to monopoly and monopolistic competition. In the most compact statement which I am able to formulate after studying at least part of the literature available, the general idea is this: In a system of free enterprise, each individual has complete control over his own operations. In all economic analysis, it is presumed that he will use this control in adjusting volume to the most advantageous level. In conventional terms, this would be the volume at which marginal cost equalled marginal revenue.

The economic significance of this control depends upon the elasticity of the demand for the output of the individual producer.⁴ If this demand is perfectly elastic, any change in his scale of operations would have no effect upon price. His marginal revenue would equal price, hence he would adjust volume to the point where marginal cost equalled price. This describes the situation under the assumptions of free competition in a perfect market where each producer controls such a small part of the supply that he can exert

⁴ In this connection see A. P. Lerner, *The concept of monopoly and the measurement of monopoly power*. *Rev. Econ. Studies*, June, 1934.

no influence upon price. Under such circumstances, there can be no price or sales policy.

Whenever demand for the output of the individual producer is less than perfectly elastic, he can take into account the influence of any change in his volume upon price. His marginal revenue is no longer equal to price, but is lower, and adjustment is reached at a point where output is smaller and price higher than in the special case of pure competition. Hence, in any instance where demand for the product of the particular firm is less than perfectly elastic, there is an element of monopoly control over price. If the elasticity of demand for the product of the individual firm is identical with the elasticity of consumer demand, then the situation is one of pure monopoly.⁵

If there were no uncertainties, each producer would know precisely his marginal cost and marginal revenue for each volume of output. If each conformed to the assumption that he would exercise his ability to control so as to maximize his total returns, price would be precisely determined in each of these situations. The question of policy would not arise.⁶ If, beyond this, it were possible for the research worker to determine these cost and revenue curves, he could then "apply" this theory and obtain a complete explanation of the results in terms of price. But in reality, none of these "ifs" are fulfilled. Uncertainties are present, so that a producer does not know his cost and revenue curves but can only estimate them, oftentimes very crudely.

In view of these uncertainties, each producer must choose a policy, and this policy is based upon his estimate regarding the behavior of costs and demand. But within the limits of the control set by the inelasticity of demand for the product of the individual firm, he is free to take into account any factor he may choose to recognize—even to make mistakes. Since business executives are human, it is not unlikely that many considerations enter into their actual determinations of policy.⁷ Certainly there is ample evidence to indicate that they do not always seek the adjustment which would maximize returns over costs, even to the extent that they might be able to make the necessary computations. Finally, it is very improbable that research analysts can obtain anything more than very crude approximations to marginal cost and revenue functions for individual business units.

⁵ In a situation characterized by successive monopoly, demand for the output of a particular firm might be more inelastic than consumer demand.

⁶ See Edward S. Mason, *Price and production policies of large-scale enterprise*, Amer. Econ. Rev. (Supplement), March, 1939.

⁷ For a development of this point, see E. G. Nourse, *Monopolistic practices and the price structure*. Proc. Acad. of Pol. Sci., 18: 133-140, 1938-39.

I have already indicated the belief that our research in marketing organization should be of a character to enable us to build up synthetic estimates of the costs which would be involved with various possible operating arrangements, under conditions as nearly as possible those of reality. I also favor an increased emphasis upon demand analysis, including consumer preferences for differences in quality of products and in grades of marketing service. On the basis of such knowledge, we could, I think, develop approximations to the most desirable price structure which would be helpful in making common-sense judgments about changes needed, and the character of the effects to be expected. It is possible also that in some instances estimates of the demand situation for an individual firm could be made that would help in understanding particular situations. But these would be even more difficult, and the results of such analysis might be greatly affected by relatively slight errors. Hence it seems to me that, even if other considerations did not enter into the calculations of executives, it would still be impossible to obtain adequate explanations of the price policies of large-scale marketing enterprises through such an approach.

Beyond this, I think we may seek further understanding with respect to the price behavior of these new enterprises through studies along two general lines.⁸ One of these would be concerned with the intensive examination of conditions in the market which tend to create inelasticity of demand from the point of view of the individual firm. Such conditions include size of the enterprise, differentiation of the market, advertising or sales effort, competitors' responses to price changes, availability of market information, health or sanitation regulations, and probably many others, which will appear to the investigator as his knowledge of the particular market process increases. While such investigations will not afford a basis for estimating the precise quantitative effects of control upon price and volume, they should lead to a better understanding of the nature of the considerations involved, and to highly useful approximations regarding their relative importance. The other approach would involve study of particular enterprises with a view to ascertaining the considerations which determine their responses to market conditions. Such considerations would include factors pertaining to the business organization and financial structure of the firm. But they would also include the opinions, customs, and even prejudices of executives, their estimates of public opinion, political factors, and the like. Though such studies may not yield a complete understanding of pricing policies, they do represent the directions in which we may look to increase our present knowledge.

⁸ These approximately parallel Mason's suggestions, *op. cit.*

IV

The final type of problem which I would raise pertains to the over-all ability of the market to reflect pertinent considerations—whether competitive or monopolistic—in the prices established. This is closely associated with the matter of control. In fact, inability of the market to register changes in price forces promptly and accurately—for example, because of such factors as unsatisfactory grades and standards as a basis for trading, or inadequate market information—may be the reason why some agency is able to exercise a degree of price control. Nevertheless, it seems to me that inefficient pricing may result from factors other than monopoly control, even when a substantial degree of such control is present. For example, tobacco auctions have been notably inaccurate in reflecting actual quality differences in the prices returned to growers, and it is difficult to see how this results from the conscious policies of any monopolistic agencies.

In general, studies directed toward this kind of problem will seek a full understanding of the whole pricing process in the particular market, and especially how this process is altered by the changes under consideration. The difficulties to be encountered will vary from market to market, necessitating a corresponding variation in the scope and method of the analyses undertaken. This may be illustrated by mentioning only two specific problems which seem to fall in this general category. In the live stock market a prominent development has been the rapid increase in country buying. Aside from any monopolistic elements which may have entered into this, what has been the influence upon pricing efficiency? Likewise, as food chains have grown in size they have typically sought to establish arrangements for buying directly from producers at or near the farm. In some cases this carries to the point where the produce is grown for them on contract. Have these changes altered the extent to which basic considerations are accurately reflected in price, including those relating to differentials in the price structure in either its geographic, product, or time dimension? Obviously the research required to answer this question would be quite different for these two situations.

About all I can say in the way of a generalization is that what we need is a complete understanding of the whole price mechanism so that we can appraise the efficiency with which it operates. The research needed will seek this understanding by covering all relevant features, including the examination of institutional arrangements, trade practices, market information services, grades and standards, and similar aspects—all as they relate to the efficiency with which prices are established.

V

So far, I have indicated the general view that observed trends towards large-scale organization of processing and distributing agencies may have great economic significance in the marketing of agricultural products and hence to our programs of marketing research. In an attempt to be as specific as possible, I have considered briefly their possible significance (1) as influencing costs and efficiency, (2) as affecting the nature of competition in the market, and (3) as having a possible bearing upon the efficiency with which the pricing mechanism registers underlying forces, either competitive or monopolistic in character. I have tried also to indicate how in each of these aspects the changes observed carry important implications to the worker in marketing research either by presenting additional problems for analysis or by altering the character of those with which he is already working. New burdens are placed upon his knowledge and resourcefulness both in keeping his work in step with the newer developments in the market and in developing the techniques of analysis which are needed for the adequate treatment of problems of major rather than minor importance.

In concluding I wish to suggest some more general considerations with respect to the organization of our research work in the agricultural marketing field. Although these considerations do not arise solely out of the changes in market organization, it seems to me that their importance is emphasized by these developments.

The first of these relates to the objectives toward which our research programs are directed. I am in full sympathy with the ideal of seeking knowledge for its own sake, regardless of its possible applicability to practical affairs. But isn't it incumbent upon us to recognize that a large part of the research work undertaken in agricultural marketing is done by publicly supported agencies and that these agencies are established in the expectation that their work will yield that kind of knowledge which permits of control toward some form of improvement? I feel, as I have implied at different points in this discussion, that at least a substantial part of our marketing research should be directed toward the determination of changes and policies which would be desirable. In determining what would be desirable, three points of view might be considered: (1) that of the individual farmer, dealer, or consumer; (2) that of specific groups of farmers, dealers, or consumers; and (3) that of society as a whole. Any one of these may be entirely defensible under particular circumstances. But it seems incontestable that the principal body of our publicly supported research should be aimed at the development of marketing methods and policies which will be of maximum benefit to the general public.

A second consideration relates to the scale upon which research must be organized if it is to be effective in attaining such an objective. All of my discussion so far has tended to illustrate the complexity of economic relationships with which the investigator must deal in most of our markets. Moreover, the analysis of any really important phase of the market is not complete until its significance to the behavior of the market as a whole has been ascertained. But this requires a comprehensive and intimate knowledge of the whole marketing process. This indicates that much of our research needs to be organized on a market-wide scale. However, the attempt to cover all elements of a market in a single comprehensive study probably would become so involved as to be unmanageable. Moreover, only Federal research agencies could conduct projects on the scale which would be required for such market-wide study.

A major problem, therefore, in attaining the effective administration of our research resources is how to organize the study of individual features of the market through a series of less ambitious projects which may be managed by individual experiment stations and other research agencies, and at the same time provide for a general analysis of sufficient scope to cover all significant phases of the marketing process as a whole. I suggest that this implies an imperative need for really effective collaboration and co-operation among the various research agencies. Perhaps this might be accomplished by working out co-operative programs of marketing research on a regional or even national scale and by careful preliminary analysis in the drafting of such programs. It seems not unreasonable to believe that a division and grouping of work could be arrived at so that local, state, and national agencies could formulate independent projects within their own areas, but which would be so co-ordinated that they would effectively complement each other in rounding out a market-wide program.

Another consideration which arises out of this need for the market-wide treatment of the more important problems is the extent to which it precludes the possibility of narrow specialization by projects. Undoubtedly, there are personnel advantages in specializing within narrow sub-fields of agricultural economics, such as market organization, demand analysis, transportation, and so on. But these advantages may be more than offset by the fact that even the best studies of such isolated phases of marketing cannot contribute towards the solution of the problem with which we are concerned until supplemented by many studies in adjacent fields. Past experience indicates that under our present set-ups, these complementary studies are not always made, or, of equal importance, the separate projects are not sufficiently well co-ordinated to make the results

really useful. The solution here seems to me again to be in the direction of less narrow specialization by research workers, and much more co-ordination and collaboration among specialists. To be most effective, this collaboration should ordinarily begin in the selection of topics to be studied and in planning the scope and nature of the studies to be undertaken.

I am optimistic enough to hope that the increased discussion of these problems by marketing specialists—for example, such as that we have had in the round tables conducted by the Marketing Research Committee during the past three years—indicates the beginning of a trend away from the study of isolated features of the market and towards co-ordinated attack upon the problem of understanding the whole economic process in its relation to the general welfare.

DISCUSSION BY T. G. STITTS

Farm Credit Administration

Mr. Hoffman and Mr. Rowe have done an excellent job in summarizing the significant aspects of changes in the organization of our agricultural markets, and have raised particularly pertinent questions concerning the adequacy of our research. I shall confine my remarks to what might be called some practical problems confronting a marketing research agency.

Mr. Rowe has raised the question of efficiency in the market structure from the standpoint of costs of the distributive functions and from the standpoint of the price making mechanism. By implication, he has raised also the question of efficiency in marketing research work. Mr. Hoffman, I should say, has raised the question of the adequacy of theoretical thinking on this subject as a background for constructive research. Together they represent deficiencies of tremendous proportions. When we remember that research personnel and research funds are limited economic resources, it is clear that we have been challenged to direct available resources into the most productive uses. The situation is somewhat comparable to the advertising man who has a fixed budget and wants to get maximum results. His emphasis is always upon means to an end.

I am in full accord with the view that a mere description of existing marketing arrangements falls short of tackling fundamental problems. Similar weaknesses are found in cost studies of existing arrangements. Yet we are in a poor position to appraise the market structure or to conduct analytical studies pointed toward increased efficiency in marketing until we know what the existing arrangements are. For example, even more information of the descriptive type is needed to develop a framework of theory applicable to the markets in order to measure the monopolistic elements Mr. Hoffman refers to. So far we have little more than kept abreast of the changes that have been occurring in the structure of agricultural markets. What, then, appears to give any promise of a solution?

Certainly careful planning and coordination of research agencies is a prime prerequisite—careful planning as to what needs to be done, followed by careful planning as to what agency or combination of agencies should undertake a given research problem, and planning as to what methods of procedure will give the best results per dollar expended. In this connection, it is encouraging to see Federal and State research agencies planning broad marketing studies which embrace a market area.

Mr. Rowe points out that by the nature of the problem, the analysis is not limited to any particular sub-field of agricultural economics. Indirectly he suggests that it may not be limited to economics. I believe this point should be strongly stressed. Are we taking full advantage of the other sciences and the men trained in other fields? It is not difficult to think of single projects in which economists could more effectively work if their efforts were coordinated with production, legal, accounting, and engineering agencies.

There have been, to be sure, a number of joint projects between various fields of research. I am merely wondering if, in the face of the work remaining to be done, we have anywhere near exploited the possibilities of joint projects of this kind. To raise a specific problem, how are we to test the efficiency of the pricing mechanism in reflecting grade price differentials unless we have the services of a grading specialist? Or if we are to follow Mr. Rowe's suggestion that the budget-estimate type of approach will give the best result for certain purposes, we must necessarily call upon the technical men of other fields.

Both papers raise a number of questions which are particularly significant to farmers' marketing organizations. Farmers have organized for the specific purpose of marketing their products more efficiently. In the light of the trend towards mass distribution of food products, what should be their program? Generally speaking, there seem to be two avenues of approach. One is to compete with the mass distributor by performing the same functions; the other is to prepare their products for market distribution by the mass distributor, and bargain as to prices.

A few cooperatives do perform all the distributive functions from the farm to the consumer, or at least to the retail store. There are, however, indications that cooperatives are taking on more marketing functions. But they are not, for the most part, the giant organizations Mr. Hoffman has described. If we are to conclude that there are economies in mass distribution, or advantages of monopoly control, then it would seem that organized farmers either must become one of them or resolve themselves to a bargaining position. Bargaining, of course, is not the sole function since quality improvement, standardization, assembling, grading, and packaging are all part of such a program. It means, however, that they must forego their own brands for the most part, and have little or no control over the actual selling. Many cooperatives have felt that cooperative marketing, in the fullest sense of the word, is as important to their welfare as cooperative processing and manufacturing. In the light of these recent developments, the extent to which farmers should undertake distribution is more problematical.

Perhaps now the more fundamental consideration is what the bargaining policy should be. Insofar as the cooperative has any bargaining power, its decisions have a bearing on the price structure. When the individual producer operates under a completely elastic demand curve, a combination of a larger number of producers may operate under a sloping demand curve. The degree of control, and hence the ability to influence prices, depends on the nature of the market, the product involved, and the scope of the organizations. Fluid milk producers, operating in a more or less sheltered market and those producing specialty crops, may, as we well know, exert considerable influence on the price structure.

The point I wish to emphasize is that even though an organization does not perform all the marketing functions, it has a price policy which has been determined more or less unconsciously or by careful planning and analysis. We need to know what this policy should be. Certainly we have witnessed a host of unwise policies in the past. We need, I should say, the type of information Mr. Rowe is suggesting, consumer demands, cost-price relationships, and an understanding of the whole problem of price efficiency.

But even if we had such an understanding of the market as to permit the wisest price policies, the problem of the cooperative is by no means solved. It is one thing to know what should be done; quite another to explain it to a group of producers and put it into practice. As I look at these problems, I am more and more impressed with the fact that we not only need increased knowledge of the market structure, but we must follow any research with an intensive educational program.

COTTON, LAND, AND PEOPLE: A STATEMENT OF THE PROBLEM

I. W. DUGGAN

Agricultural Adjustment Administration

Cotton is the basic crop in the agricultural life of the South. In the ten principal cotton States—North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, Oklahoma, and Texas—the economic welfare of virtually every citizen, regardless of personal activities, rests in a large measure upon an agricultural foundation of which cotton is the keystone.

The ten cotton States, which are the basis of this discussion, are famed for many crops, but the annual average cash income in these States from cotton alone is more than the annual cash income from all of the other crops and livestock enterprises combined. Cotton has maintained its dominant place in these ten States in spite of low prices, boll weevils, over production, foreign competition, synthetic fibers, and other limiting factors.

Cotton is a "money crop" upon which the farmers of these States have long depended for cash to pay bills and operating expenses. Regardless of how low prices may be, there is always a market for cotton, even at the smallest crossroads hamlet, where a farmer can exchange his lint and seed for cash. Regardless of what a farm may produce for food and feed, the fact remains that it must also produce some crop or crops which can be sold for cash. Money must be had to pay taxes and labor and buy clothes, seed, fertilizer, machinery, and other things the farm itself cannot produce. To get this cash income, Southern farmers have long depended upon "King Cotton," despite the fact that this ruthless ruler has built a sprawling and densely populated kingdom where poverty and low income prevail.

During the 12 years 1924-35, the annual gross farm income from cotton and cottonseed in the ten principal cotton States averaged \$1,019,000,000. This figure represented 41 per cent of the average total gross farm income in these States from all crops and livestock enterprises combined; 59 per cent of the gross income from crops alone; and was 39 per cent larger than the gross income from livestock enterprises. From the standpoint of cash income, cotton occupies an even more important position than is indicated from the gross income data. For the ten States, the average cash income from cotton in the 12 years, 1924-35, amounted to 53 per cent of the cash income from all crops and livestock enterprises combined; 67 per cent of the cash income from crops alone, and was 158 per

cent more than the cash income from livestock enterprises. In individual States cotton looms even more important. In Mississippi, for example, where 66 per cent of the people live on farms the income from cotton during the 12 years has varied from 65 per cent to 83 per cent of the total cash farm income.

In 1934, cotton was produced on 1,863,067 of the 2,713,597 farms in the ten principal cotton States. According to the last decennial census, more than 80 per cent of the farms producing cotton in these States received at least 40 per cent of their total income from cotton. Total farm population of the United States is 31.8 million, and of this number approximately 10 million live on cotton farms, and derive the major portion, and in many cases their entire cash income, from the production of cotton. In 1924, 43 per cent of the cultivated acreage in the ten States named was devoted to cotton, in 1929, 44 per cent, and in 1934, 27.5 per cent.

Cotton is not only important to the farm population of the South, but to the region's entire population. In these ten States many facilities have been developed to finance, transport, handle, and process the cotton crop. In some areas even the educational system is built around the cotton economy. The income from cotton determines to a large degree the funds available for education, and in many rural areas the school session is adjusted so as not to conflict with the peak of labor requirements in the production of cotton.

The first and most important problem of the South is that of low income. To state the problem simply, there just is not enough total agricultural income in the South to support the region's extremely dense farm population. In the ten principal cotton States, 47 per cent of all the people live on farms. The average per capita income of these rural people is unbelievably small. They are, as the President has so aptly stated, "ill-fed, ill-clothed, ill-housed." Many, if not all of these ills, can be traced directly to an inadequate income. There is no hope of correcting these ills through the redistribution of the available income, because that income is so small and so inadequate, that even if it were redistributed there still would not be enough to go around. The first problem is to increase the total income going to the South so there will be more to divide among its dense farm population.

The gross per capita farm income for the ten principal cotton States for the years 1924-35 averaged \$184. For the first 5 years of this period, the average per capita gross income was \$238, and for the last 5 years it averaged \$127. The cash income figures are even more significant. For the first 5 years, this cash per capita farm income amounted to \$190, and for the last 5 years it amounted to

only \$95. It is impossible to distribute such a small cash income so as to give a minimum purchasing power to the entire farm population. It is impossible to achieve or maintain even an un-American standard of living on a per capita income that low.

Out of this inadequate income it is necessary for producers to pay certain production costs, so that the income left for living is a much smaller figure. The cash out-of-pocket cost of growing cotton, the most important crop, is relatively large. The average cost for fertilizer alone, for the years 1923-32, inclusive, for the ten States amounted to \$2.07 an acre. Fertilizer costs ranged from an average of 25 cents an acre in Oklahoma to \$7.40 an acre in North Carolina. The cost of fertilizer per acre is usually highest in the areas of densest farm population.

The cropland per capita of farm population in the South is far too small. In 8 of the 10 principal cotton States there is less than 8 acres, and in 5 of these States there is less than six acres of cropland per capita of farm population. More than one-third of all the farms in the United States are located in the 10 principal cotton producing States. Out of the national farm population of almost 36 million people, more than 13 million live on all types of farms in these 10 States. With this dense farm population and limited cropland, the farming units of the South are generally too small to permit efficient operation and to support the average family. Even with the most intensive cultivation, ignoring for the time being the limiting factor of markets, 5 acres of cropland per capita is not sufficient to maintain a standard of living equal to the average for all United States farmers. It is not probable that over a long period of time the dense farm population of the South can be supported on the limited cropland of the area.

Cotton has been the source of cash income in the South, because, in addition to being naturally adapted to the area, it has returned over a long period a higher income on both a per acre and a per hour basis than any other major crop except tobacco. According to an extensive study made by the Bureau of Agricultural Economics,¹ the per acre and per man hour returns from cotton are small, but they are still far in excess of any other crop universally adapted to the South and for which there is a ready cash market.

The returns from crops other than cotton and tobacco might be somewhat higher if such crops were planted on the best land in the area, but they would still fall far short of equalling the income from cotton or tobacco.

In the report on the same study there is shown the estimated

¹ The World cotton situation. Part II Cotton Prod. U. S.—BAE, Washington, D. C., February, 1936.

average acreage required to produce \$100 worth of products from certain livestock enterprises and from cotton in 8 of the principal cotton States, on the basis of average yields and prices in the 10 years 1923-32. Texas and Oklahoma were omitted because the principal livestock areas in those States are not cotton-producing areas to a large extent.

About one and one-half to over eight times as many acres were required to produce \$100 worth of products in the case of dairying, beef cattle and hogs as in the case of cotton. Even poultry required a third more acreage than cotton to produce \$100 worth of products. The relatively low returns from livestock enterprises in these States are attributed to the low average yields of feed crops and the low carrying capacity of most pastures. The small acreage of cropland per capita is also one of the limiting factors in increasing livestock production. Other limiting factors are the large investment required in livestock enterprises, the lack of training and experience in livestock production, and the system of farm tenure. Losses from disease and insect pests still adversely affect the expansion of the livestock industry.

In the 10 principal cotton-producing States the 1935 census showed that of a total of 2,714,000 farms there were 758,000 without dairy cows, 973,000 without hogs, and 340,000 without even a chicken. These figures show the drastic need for expanded production of livestock to meet home needs. The livestock that is produced in the 10 States is not an accurate guide to the number used on farms because of the large-scale livestock industry especially in the non-cotton areas of Texas and Oklahoma and local areas in other States. The facts are that a considerable portion of the livestock and livestock products goes to market, and though originating in these States, does not furnish a part of the diet requirements of cotton farmers who are unable to afford these products.

In a recent preliminary study by the Bureau of Agricultural Economics² it is estimated that an additional 5.8 million acres of cropland and 8.7 million acres of pasture land would have been required in 1937 to furnish a minimum adequate diet for farm families in eight of these ten States. North Carolina and Tennessee are the two States excluded in this study. The same study showed that more than three-quarters of a million additional dairy cows were needed in 1937 to supply the dairy products and fifteen million more chickens were needed to supply the eggs alone for a minimum adequate diet.

Here again the problem of dense farm population and limited

² Food, feed, and southern farms—Farm Management Reports No. 1—BAE, Washington, D. C., November, 1939.

cropland is an important factor because the profitable production of livestock requires adequate pastures and plenty of home grown feed. Few farms in the cotton belt can further take away from their "cash" crops the land needed for pastures and feed. Furthermore, the South, except for certain well-defined areas, is not well adapted to grazing. There are no universally adapted perennial or biennial legumes in the South which provide grazing and forage.

Some observers have been keenly interested in the possible expansion of the livestock industry in the South under the Agricultural Adjustment Administration's program of diverting cotton acreage. The program not only permits but encourages the production of food and feed needed for home use but there are definite restrictions on the use of diverted acres for commercial production. In addition, not all of the land diverted from cotton is available for food and feed as it is necessary to devote considerable acreage to soil-conserving and soil-building uses if the productivity of the soil is to be restored and maintained.

It is estimated that 282 million acres in the United States have been badly damaged by erosion. Of this amount approximately 30 per cent is in the 10 cotton States. An additional large portion of the cropland of the South is damaged by moderate erosion. The system of tenure, the cropping system, the low income, the topography and the climate have, for a long period, contributed to the depletion of the soil.

Sharecroppers and tenants who stay on a farm for only one, two, or three years have not been interested in expending the labor and money necessary to conserve and build the soil. Moreover, they have not known how to do this and the management has not encouraged them along this line. The farm income has been so low that every dollar was needed for bare subsistence. Money could not be spared to buy the seed and fertilizer needed in soil-conserving practices.

Because of the dense farm population and the low income, too much of the land of the South has been devoted to soil-depleting, intertilled, cash crops which leave the soil bare during the open winters, the season of heaviest rainfall in most of the region. Much of the cropland, especially in the Piedmont areas should not be planted to row crops because it is too steep for cultivation. Nevertheless, it is continually cropped year after year in cotton and corn because of the need for land. To keep a cover on the soil throughout the year in much of the South it is necessary to plant both a winter and a summer cover crop. In most cases the seed for winter cover crops has to be imported from without the region and requires an out-of-pocket cash outlay. To get satisfactory results from cover

crops in the South, it is necessary on much of the land to apply phosphate or lime, or both, which also requires a cash outlay.

The opportunities for supplementary farm income from forest enterprises are not being used to benefit the farmer to the fullest extent in the South. The lack of stability in the farm population, the length of time before income can be realized, and the size of farm units all hinder development of forest enterprises.

The story of forestry in the South in most instances is a story of exploitation. From my rather limited observations, the present operations of the pulp mills are the last stages in the exploitation of the forests of the South. Many farmers have told me of the low prices they have received for wood sold to the pulp mills. That is distressing news today, but what concerns me most is that it foreshadows further depletion in the years ahead of the South's once magnificent forests. Improved forestry methods are needed, and improved woodlot management would be an asset to cotton farmers.

Probably one of the most discussed problems of the South is the high rate of farm tenancy. It seems to me, however, that the South's system of tenure, the cropping system, and the credit system have grown up together and are so closely intertwined that it is difficult to deal with any one separately.

Sharecropping dates back to the War Between the States and is an outgrowth of the conditions following the emancipation of the slaves. The planter had possession of the land and in many cases, the tools and equipment, but no money with which to employ labor. The laborer had no money with which to acquire land, tools or equipment, or to finance his operations, and was unskilled in any other occupation except agriculture. Out of this situation grew the sharecropper-tenant system as we have it today. The need for credit to finance crops made it essential that crops be grown for which there was a ready cash market. Cotton was the natural answer to the cash crop problem.

The high rate of tenancy in the South is too well known to this group for me to go into any detail as to its prevalence and distribution. I believe it will be sufficient to remind you that 60 per cent of all the farmers in the 10 States are tenants or sharecroppers. The percentage ranges from 47 per cent in North Carolina to 70 per cent in Mississippi. Despite the heavy negro farm population, there are 40 per cent more white than negro tenants in the South. Tenancy has shown a steady increase, even during the relatively prosperous period of the 20's. In the State of Oklahoma, for example, which started out 50 years ago as free land to all who would homestead it, we find today 61 per cent of the farmers are tenants. On the aver-

age, about 40 per cent of the tenants in the South move every year, and over half move every two years.

The credit system of the South with high interest rates has contributed to the tenancy problem. However, providing low interest credit alone will not solve this problem. If the income from the farm is not sufficient to pay back the principal, a low interest rate in itself would not bring about farm ownership. Here again the press of population for land tends to lead to the overcapitalization of land values and retards operator ownership.

There are other matters growing out of the sharecropper-tenant system that I would also like to call to your attention. The question of a fair division of crop and livestock products between sharecroppers and landlords and between tenants and landlords, has long been a controversial issue. In recent years, it has come up repeatedly in connection with division of government payments. As yet, this question has not been satisfactorily answered either for the landlord or the tenant. However, here again the division of an inadequate income cannot be satisfactory to either the tenant or the landlord. The first problem is to increase the total income.

Under the farming and tenure system, tenants find it difficult or impossible to obtain productive employment when not engaged in the production and harvesting of the cotton crop. On the average only about one hundred and twenty days of productive labor is required to make the cotton crop.

The tenant, however, does have opportunity for additional employment if he produces his own food and feed and takes care of his livestock, farm buildings, and equipment. While this would tend to lower the cash expense and improve the standard of living, it would not materially add to the cash income and purchasing power. Yet, even here we meet resistance because the skill required to properly do these things has not been developed. These people lack experience and educational opportunities.

Educational opportunities are lacking despite the fact that the 10 principal cotton States spent 3.2 per cent of their total 1935 income for educational purposes. This figure compares favorably with other regions and the United States as a whole. We must keep in mind, however, that the South has an added burden of supporting a dual school system which, while necessary, tends to increase the financial burden.

The opportunities for part-time employment of the South's rural people in industry are also limited. There are large deposits of certain minerals in the South, but even here the opportunities for employment of seasonal farm labor are limited. It might be mentioned in passing that the area does not receive maximum benefits

from its natural resources because, as a rule, they are controlled by absentees. The annual production of oil in Texas, for example, has a valuation of several hundreds of millions of dollars, yet only a small amount of this remains in Texas in the form of royalties, labor, and transportation costs. The same is true of many of the manufacturing and other industrial concerns located in the South, as most of these have been developed with outside capital and the profits, if any, have gone out of the region. The large insurance companies are not located in the South and for a long period of years the South has sent money which was sorely needed for local development to other regions to buy insurance.

Many of the advantages the South has had to offer industry have been nullified. Freight rates have played no small part in off-setting the natural advantages of the South. In a recent study made by the Tennessee Valley Authority³ it was found that the per ton mile cost of hauling freight is actually lower in the South than it is in the official area, yet the charges for freight are considerably higher in the South than they are in the official area. This disparity is even greater between the official and the Western areas.

The per capita use of consumption goods in the South is low because its people do not have the purchasing power with which to buy. If more manufacturing and industrial plants were located in the South, there would be a larger outlet for expanded production of a more diversified agriculture. We have a large group of people who are not able to buy the consumption goods they need. These people need employment and could be used in producing these goods. Could not these two factors be reconciled without detriment to other regions?

It is possible that all or almost all of these handicaps could have been overcome if it had not been for the long-time national tariff policy. That, of course, is one man's personal opinion on a deep-rooted economic question that has rocked this country since the days of Alexander Hamilton—split it once—and apparently is just as far from being settled today as it ever was. The reciprocal trade agreements program of the present Administration is one approach to this problem but even this more or less mild effort to recognize that we can't sell if we don't buy is being singled out for attack in some quarters. I merely mention the tariff as one of the South's major problems.

Cotton and tobacco, the principal crops of the South, are both export products and we normally sell half or more of these crops abroad. Historically, the whole economy of the South has been built around cotton. Cotton has been the most important export

³ The interterritorial freight rate problem of the United States.

commodity of the United States since shortly after Whitney invented the cotton gin.

The average annual value of cotton exports from 1875 to 1910 amounted to about \$260,000,000. During these same years the average favorable balance of merchandise exports from this country amounted to about \$250,000,000. This was a period when it was generally considered the United States was prosperous; a period when the interest and principal of our foreign debts were being paid off. In other words, cotton exports played no small part in paying for the industrialization of this country in the 19th century.

If 90 per cent or more of the cotton crop were domestically consumed, it might not be difficult to attain parity income from cotton production. But, whether we like it or not, that is not the case. American cotton depends on foreign buyers for a large part of its consumption. Suppose for example, that our cotton producers during the last few years had received a parity price for that portion of the crop domestically consumed. World prices for the remainder of the crop, even with normal production, would leave the farmer's income from cotton much below parity, possibly 25 to 30 per cent below.

Prior to the World War we were a debtor nation, but we came out of the war a creditor nation, which made it difficult to sell abroad. For a while, through large loans during the 20's, the full effect of the change to a creditor nation was not felt on exports. Trade agreements, such as the one in which Japan agreed to take up to one million bales of Indian cotton a year and India agreed to take up to four hundred million yards of Japanese cloth a year, have further handicapped the exports of American cotton.

Another important factor is that foreign acreage in cotton production has been on an upward trend during the last half century. According to a study by the BAE in 1934, foreign cotton production for the preceding 45 years increased at the rate of 150,000 bales a year while the average annual increase for the United States was a little more than 100,000 bales a year. Since 1920 foreign acreage has almost doubled. About 17 million acres of this increase took place between 1932 and 1938. However, most of this increased acreage in foreign countries is accounted for by the four countries of Russia, China, Uganda, and Brazil. The increase in three of these countries, China, Russia, and Uganda, can be attributed to internal conditions and probably would have taken place regardless of policies in other countries. This is also true of a considerable amount of the increase in Brazil.

It should be borne in mind that this increase in foreign acreage in cotton production has taken place while the World price of cotton was on a very low level. About ten years ago foreign countries

produced around 10 million bales of cotton for the equivalent of approximately \$900,000,000 in American money. In recent years foreign countries have produced around 16,000,000 bales of cotton for an equivalent of around \$600,000,000 in American money. These foreign countries are now growing 60 per cent more cotton for about 30 per cent less money than they did ten years ago.

Cotton farmers of the South cannot produce cotton for the world market and live at world prices. On the other hand, they cannot afford to give up the foreign market for cotton without rearranging the whole economy of the South. Such a rearrangement would affect the entire nation.

One other development which is making it more difficult to sell cotton abroad is the increased production of continuous filament rayon and rayon staple fiber. World production of these fibers increased from about 33,000,000 pounds, or the equivalent of 78,000 bales of cotton in 1920, to 1,948,000,000 pounds or the equivalent of 4,583,000 bales of cotton in 1938. Most of these fibers are produced in Japan, Germany, the United States, Italy, Great Britain, and France in the order named. I do not mean that this much cotton has been replaced but the increased use of synthetic fibers has to be reckoned with both at home and abroad in dealing with the cotton problem. Possibly equally as significant as is the increase in the production of filament rayon is the decline in the price. In 1920 the price of filament rayon was \$4.66 per pound of yarn. By 1938 the price had declined to 52 cents per pound of yarn.

The problems I have raised appear to me to be the basic economic ills of the South. There are others, of course, that I have not expanded upon, such as the prevalence of diseases—particularly nutritional diseases growing out of inadequate diets, and the absence of adequate medical care and hospital facilities. Then too, we have the sorry spectacle of women and children working long hours in cotton fields—women who bear more than their share of the nation's children. In sharp contrast to the hours of back-breaking hand labor, we have the more recent mechanization of cotton production with tractors for cultivation, airplanes for dusting and the mechanical picker lumbering through the experimental stage.

But I am not going to elaborate upon these problems for it seems to me that they are contributory to, or have resulted from, a major problem which is the fountain head of the South's economic ills. I believe that the major problem can be summarized in one statement. That is: it is the press of a dense farm population against the limited natural resources, together with artificial, man-made handicaps and legal barriers, such as the tariff, which have resulted in an inadequate income both in the aggregate and on a per capita basis. That, briefly, is the basic ill of the South.

HOW CAN THE SOUTHERN POPULATION FIND GAINFUL EMPLOYMENT?

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Given a question such as ours, none but the foolhardy would seek to become embroiled in the various controversies agitating economic theorists. Such a controversy centers around the nature of our present depression. Does it mark the end of our long period of economic and industrial expansion in the United States? Or have we only encountered the most prolonged of the frequent depressions which characterize modern economic progress. These alternatives, it will be realized, set the stage for two entirely different approaches to the problem of full employment of the South's working force. In order to avoid a futile pretense of economic infallibility, we shall grasp in turn both horns of the dilemma. The question, accordingly will be considered under the assumptions of both recovery and non-recovery.

On this point I should like to make my position clear. It is entirely possible to assume that we may have general industrial revival and yet fail to reemploy all gainful workers in the Southeast. It is impossible, however, for me to think that we could have re-employment in the Southeast apart from industrial expansion and revival in the nation. To avoid further controversy in the short time allotted this paper, I shall for the most part regard it as immaterial to our topic whether first hypothesis of full recovery be predicated on the assumption of (1) either a self-adjusting upswing in the business cycle or (2) a planned expansion in production. The first view is held by those who contend that lack of confidence is the only bar to recovery; the second view is best represented by such plans for industrial expansion as advocated by Mordecai Ezekiel in his *\$2500 A Year and Jobs for All*. Furthermore I shall not discuss either the probable effect of the war nor the problems of business confidence. For the time being we are more concerned with the long run effect of expanding economic activity on the South than with the conflict of philosophies.¹

¹ It is clear that in any long run analysis population in the South will continue to exert its expansive pressure for some time. With the national replacement ratio hovering around unity, the rural Southeast in 1930 was replacing its present generation at a ratio of 1.50. With only 22 per cent of the nation's population in 1930, the Southeast accounted for 36 per cent of the country's population increase from 1930 to 1935. Birth rates in the area are falling at a sharper ratio than elsewhere, but it must be pointed out that regardless of what happens to the birth rate, we shall have an increasing working population for approximately the next 15 years. As a remedy for unemployment, birth control, it must be remembered, exhibits an eighteen year lag. While increases in our working population, the group aged 18 to 65, will reach

I

Given total national recovery under our first assumption, we must first ask: What are the chances that southern agriculture will expand sufficiently to employ maturing farm youth? If we can accept the preliminary analysis of the National Resources Committee the chances are slight. In its *Patterns of Resource Use*, the Committee's experts attempt to answer the following question: What level of activity in our national economy is necessary to absorb the unemployed? With full reemployment under prevailing patterns of consumption and resource use, what level of employment would be attained in each major segment of industry? Briefly the conclusions may be stated as follows: the attainment of full use of man power would increase equivalent full time employment from 41.4 million workers in 1935 to 54.5 millions in 1938. Under prevailing resource patterns this calls for increased spending by consumers corresponding to an increase from the present 60 billion dollars of total income to 90 billion dollars. Compared with actual employment in 1935, full employment in 1938 would necessitate roughly increases of 40 per cent in manufacturing employment, 50 per cent in the extraction of minerals, 41 per cent in employment on the railways, 47 per cent in the services, 153 per cent in construction, but less than 2 per cent in agriculture. The total number of agricultural workers in the nation would increase from 9.9 to only 10.1 million.²

If we accept this analysis as approximate, I wonder if we realize its full implication. With all the increased spending that would come from full reemployment, the added demand for farm products would have increased agricultural employment from 1935 to 1938 by only 2 per cent. Thus the greatest economic expansion possible in our day would mean an annual rate of reemployment in 1935-1938 of only .03 per cent as against an annual replacement rate of productive farm workers of over 3.2 per cent (1930 data). Against this we may put the 1,952,550 unemployed estimated to exist in the Southeast by the 1937 Special Census of Unemployment.³ Granted recovery, we may safely assume that all the unem-

a peak around 1842, total number will not attain stability until after 1850. From 1930 to 1955 T. J. Woofter has shown that total working population aged 18-65 will grow from 73 to 92½ millions. Most of this increase comes from rural youth and of all areas the Southeast leads with an annual increase in 1930 of 3.2 per cent in males aged 18-65 in the rural farm population. However much contraception may do to lighten family budgets and decrease our future population, these people are already born and on the scene.

² *Patterns of resource use*, National Resources Committee, 1938, Chart XII, p. 33.

³ By adjusting the 1930 and the 1937 censuses of unemployment to a comparable basis we have estimated that for the nation the loss of 4.7 million jobs gave a total increase of 8.6 millions unemployed. Approximately 16 per cent of the lost jobs and 20 per cent of the increased unemployed were located in the southeast.

ployed, all natural increase, and all working population hereafter displaced by increasing mechanized efficiency in agriculture will have to find employment in non-agricultural pursuits both in the nation and in the South. This, as I have pointed out elsewhere, calls for greater internal migration than has yet been realized.⁴ Rather than attempt to measure such migration whether of industries to the South or of southerners to industry, it may be more profitable to examine the dynamic factors that may intervene in this analysis.

Many dynamic factors, it will be realized, may operate to change the patterns of consumption and resource utilization assumed as constant in the Committee's Report. In our analysis we shall be able to glance at only two, namely: (1) the possibility that improved consumption habits may increase employment in the production of foods and (2) the likelihood that mechanization and rationalization of agriculture will decrease its capacity to employ labor in the South.

What changes might be expected from needed improvement in food habits among the American people? The consumption of adequate diet at moderate cost or the liberal diet would greatly increase agricultural employment.⁵ Prospects of increase sufficient to affect

If the jobs lost in the nation from 1930 to 1937 be taken or equal to 100, the increased unemployed equals 181. If we deduct those who have grown to employable age since 1930 the 100 lost jobs meant 176 increased unemployed. In the Southeast 100 lost jobs meant 223 increased unemployed. Less population growth it meant 221 unemployed. Briefly these facts indicate that the contraction of agriculture is forcing into the labor market a higher proportion of these once regarded as unavailable for gainful employment.

⁴ Carter Goodrich, et al. *Migration and economic opportunity*, pp. 154-157.

⁵ Home economists have worked out the per capita requirements of various foods at four different levels of diet: (1) restricted diet for emergency use, (2) adequate diet at minimum cost, (3) adequate diet at moderate cost, and (4) liberal diet. (Diet at four levels, United States Department of Agriculture, Circular 296, 1933. Also *Regional problems in agricultural adjustment*, United States Department of Agriculture, 1935.) Preliminary estimates indicate that the man hours of labor required to produce these four diets for 125 million people are in billions, respectively: 7.5, 11.5, 16.8 and 20.1 million man hours. The restricted diet accordingly requires 4 per cent less man power than domestic food requirements for years, 1928-1932. The first two diets could be produced on the 1930 harvested crop acreage with some shifting. The adequate diet at modest cost (#3) and liberal diet (#4) would require increase of about 40 to 68 per cent in man power at 1930 methods of utilization. The liberal diet would require 20 per cent increase in our crop acreage. Both the moderate and the liberal diets require revolutionary changes in production.

What are chances of securing these needed advances? At 1934 food prices (lower than today) a family of four must have at least \$2,000 annual income to consume the moderate cost diet. The liberal diet would require a family income of \$4,000. In 1929, the year of our highest prosperity, only 34.7 per cent of all families and unattached individuals had incomes of \$2,000 or more. Only 10.7 per cent had incomes of \$4,000 or more. Full reemployment as we have seen would not raise income levels more than enough to expand man power in agriculture by 2 per cent. Speculation as to the increases in agricultural employment that might arise from increased income and better food habits of the American people thus easily become unrealistic.

commercial agriculture in the South depend so greatly upon mass improvements in income distribution and food habits as to appear unrealistic. If full employment would increase the man power in agriculture by only 2 per cent, the chances seem much less that general acceptance of liberal diets will appreciably increase such employment.

Much more tenable is the likelihood that increased mechanization of cotton production and rationalization of the tenant system will further decrease the region's agricultural employment. In the matter of increased output per worker, the South has lagged behind other regions. Thus from 1880 to the present while the estimated labor required to produce 20 bushels of wheat declined from 25 to 10 man hours and that required for 40 bushels of corn fell from 80 to 10 man hours, the labor needed for producing a bale of cotton declined from 300 to 200 man hours. Reports of machinery purchased and tenants released or transferred to casual labor indicate that this delayed trend is now reaching those parts of the region suited for mechanized farming. Weighing the trends against each other, it seems safe to predict that reemployment due to changes in consumption habit has little likelihood of keeping up with the displacement of agricultural workers due to increased efficiency and production.

II

The South has a greatly expanding population in the midst of a stationary national economy. What the South needs is the adjustment of a decreasing rate of population growth to an increasing utilization of national and regional resources with the chance of migration for its unutilized labor force. What it finds is a national economy all bound up with structural rigidities in the production and pricing policies of large industries, supplemented by wage policies that aid in restricting expansion in production and employment.

The assumption that full employment is a normal phenomena results, no doubt, from an uncritical application of the idea of self-adjusting equilibrium to the modern economy. The existence of relatively protected or isolated areas of administered prices and wages is incompatible with the doctrine of a continually adjusting and readjusting equilibrium. If so, it is also incompatible with full employment. It is in the matter of industrial prices and production and the relative economic efficacy of public and private investment

(Carter Goodrich, et al. *Migration and economic opportunity*, pp. 403-404.) Unproved also is the assumption that the South would secure a proportionate share in the expansion of such production.

that the New Deal has appeared most confused in its theories and ineffective in its policy. After shoveling out billions in purchasing power, we have about come to the conclusion that the impetus of this purchasing power cannot lift us over the barriers set by a rigid and unequal price structure.⁶

My query, however, has been loaded by the program committee. It is not "Can" but "How can the southern population find gainful employment?" The usual answer would be that these long range considerations must be foregone for the emergency during which the unemployed will be provided for by relief and the building of public works. Admitting that the function of an economic system is (1) to produce goods and services for the total population and (2) to provide profit and dividends for those able to make the necessary investments toward this goal, our present policy as we are often told substitutes public for private investment. Obviously the examination of family budgets will show that the capacity of any group for consuming public works in the form of public highways, playgrounds, and public buildings is extremely limited as compared to their capacity to consume goods, houses, and services.

What can be done by and for an area characterized by low labor standards, low productivity, low degree of training and skill of its labor, low amount of capital resources for new investment with

⁶ Today the production and prices of steel, iron, glass, aluminum, farm machinery, automobiles, paper, heavy electrical equipment, building and construction materials, and many other lines depend more on the policies and decisions of a few men in key corporations than upon the classic processes of competition and supply and demand presented in economic textbooks. Administered prices in industries that by no means approach monopoly, administered wages in trades that are fortunate enough to be both skilled and organized, have not followed the pattern of economic progress and income distribution so persuasively presented by the Brookings analysis. It is likely, as George Soule points out, that our modern economy will refuse to take the bitter medicine of deflation, but it may be that the old brand of automatic recovery for which we wait may be impossible without it. Having interfered this much with the once automatic machinery, the policy of waiting for it to resume operation may be futile.

With no softening of rigid pricing policies, attempts to prime the pump by financing public works have produced less effect than the comparable amount of private investment. Here we must contrast the effect of public versus private investment in starting the flow of purchasing power. While public and private investment may be equally productive in a large social sense, public investment does not tend to increase the monetary income of the nation as much as private investment. When the government builds a \$1,000,000 park and a firm builds a \$1,000,000 factory, both pay out the same amount for labor and materials. After they are finished, the park may provide an expenditure of only \$50,000 annually while the factory provides an annual turnover of \$500,000 paid for materials, wages, interest. In addition to the fact that the factory provides goods that are more likely to appear on the family budget, it must be pointed out that a much higher rate of public investment is needed to build up a national income of a given size. Not even ten times the amount of public investment in public works can compensate the South's unbalanced agrarian economy, an economy which would be thrown further out of balance by the adoption of program of subsistence farming.

credit for expansion controlled largely by national concerns engaged in protecting their own pricing, production, and patent policies? Shall we attempt to break down the known rigidities and allow relatively unlimited production at whatever price the market sets in a freely moving equilibrium? Should we expect the degraded level of wages in the Southeast to take its natural effect in the attraction of industries and investment to low cost production and thus begin the process of tearing down the administered prices and administered wages. National policy as expressed in the Labor Standards Acts sets limits to this process. Moreover the safety of previous investments and the assurance of returns on these commitments is assumed by many to be as much in the public interest as full employment. We are thus led to consider whether the unemployed would not well be put to work feeding and clothing and housing themselves rather than continuing to build public works. Public reactions against the indefinite continuance of spending policies make that question more pertinent.

In relation to an agricultural area like the South, such a suggestion assumes two aspects; namely, (1) the resettlement of new farmers to provide their own food and part of their shelter and (2) setting the unemployed at work to provide industrial goods and services needed by themselves and other unemployed. Both plans involve the creation of an economy within an economy, an *imperium in imperio*. Apart from the necessity implicit in the title assigned, is there any justification for such a proposal?

III

Food is still the largest item on the family budget, tenant families are undernourished, and our farms still furnish the largest replacement ratios in the population. I am not one of those who believe that our failure to develop subsistence farming or peasant proprietorship on a large scale is due to the lack of land as good as that now under cultivation. Rather it is due to our disinclination to interfere with price adjustments in commercial agriculture plus our repugnance to condemn by government fiat a large group to bare subsistence level.⁷ If agriculture, to paraphrase Napoleon,

⁷ Malthus saw our problem in terms of men, land and food. To the dire forebodings of Malthus, you will recall, an early critic replied that every mouth that arrived on our planet brought along a pair of hands with which to feed itself. To this there was an easy answer; namely, that the hands should also bring along twenty acres of good land on which to grow the needed food. Needless to say, in our times the equation has grown more complicated. In commercial farming under the price system this pair of hands should, it seems, also bring along a market for agricultural staples; while under the AAA, it had best be provided with tobacco or cotton quotas and accompanying subsidies for not growing as much as would otherwise be possible. Theoretically each mouth should furnish the market needed to energize

furnishes the life of a people; industry, their comfort, and commerce, their luxury, it must be realized that subsistence farming provides an inadequate life, few comforts, and no luxuries. Subsistence farming in super-modern America can hardly be defined as gainful employment.

Certainly there are almost insuperable objections to be leveled against the further extension of subsistence farming on the basis of any plans now suggested. No provision can be made under purely live-at-home farming for either the production of needed industrial goods and services nor the purchasing power with which to secure them. It can be pointed out, however, that tenants and crop-ers in the South produce unneeded staples in a commercial economy upheld by subsidy while they themselves go without needed food that could be produced on farms. To reduce cotton production closer to effective demand, national and foreign, will require the transference of much of this labor force to general farming devoted partly to satisfying home needs. This program involves an attack on the poverty of tenants rather than a proposal for increasing employment in agriculture.

IV

There is left our second suggestion made under the assumption of a contracting or a stagnant economy. That is to put the unemployed to work providing for the needs of the unemployed and to integrate with this arrangement as large a resettlement program as may be economically feasible. This involves the organization of the unemployed in self-help cooperatives operating outside the

the pair of hands—especially since in our day of compulsory education and child labor laws, the mouth operates to create markets for some 18 years before the hands go fully into the task of producing for the market.

If Malthusianism, alone set the frame of reference for the employment of our southern farm population, we should by all means turn our undivided attention to the settlement and development of more land. If we could agree with those interpreters who lay our troubles to the disappearance of the frontier, our course would be plain. Of the nation's approximately 100,000,000 acres of drainable land suitable for cultivation after reclamation, some 65,000,000 acres are found in the Southeast. Compared to the eroded sloping areas now under cultivation, this land is both level and fertile. Many squatters are continually settling on the poorest lands available. Compared to the cost of irrigating Western areas these lands in the South could be opened at low costs and settlement facilitated by cheap credit. Confronted with the suggestion of opening up new frontiers of arable land we fall back on more questions: We ask where are to be found the demand, the markets, and the purchasing power that will absorb this increased production? How can the government enforce its quotas and support agricultural prices if we further expand farm acreage and production in the South?

Here again appears the problem of price and production adjustments in a moving equilibrium. Parity prices for selected agriculturists give us one more zone of protected prices. Can this policy hope to realize all needed price readjustments? For the government to carry along a policy of restricted production for favored staple farmers and a policy of subsistence agriculture for resettled farmers would, no doubt, be productive of even more incongruous dislocations of production.

present price and investment system. Productivity would be low, wages would be low, and distribution might be expensive. Present relief funds and government credit would have to be allocated to developing this economy within an economy, this *imperium in imperio*. Wages would have to be lower for most of these workers would be apprentices, acquiring new skills in expanding our total product. If such production went very far, certain patents might have to be released for the use of these groups. Furthermore, methods of passing these goods around without infringing on the present pricing system would be demanded. This would probably involve the use of script or barter, a condition which would reflect not on the quality of goods, but rather provide against their coming into general circulation. The main point is that the total production of goods would be increased by and for those most needing employment and goods.⁸

Failing industrial expansion, the worker's alternative, many feel, is self-employment. In this day of large scale industry and corporate organization self-employment appears limited for all practical purposes to roadside stands, subsistence farms, and squatters' tar-paper shacks. Such self-employment for many unemployed represents an attempt to live in a kind of economic vacuum. It does not provide the quantity nor the variety of goods characteristic of a full-grown economic system. That it has not been widespread in the South is due simply to the relief program which apparently contributes little to permanent adjustment.

Thus by a kind of *reductio ad absurdum*, I have arrived at a combination of the first Bankhead-Jones Bill and an End Poverty in the South. Needless to say the acceptance of a system of dual economies should come only as a last resort. The existence in our economy of plentiful resources, of an abundance of uninvested funds available at low interest rates, of unemployed labor with unsatisfied wants indicates a need for the removal of those maladjustments in pricing relations that have proved "bottle necks" to large scale production. If such readjustments no longer come about automatically, we must be prepared to examine plans such as the one suggested in *Jobs for All*, for devoting our resources and intelligence to the greater production and the wider distribution of needed goods and services.

⁸ Let us take our most glaring example. To maintain our present inadequate level of housing will require, I understand, the construction of 525,000 housing units a year for the next ten years in the United States. Under present costs of building materials, of union labor, and restriction of codes and other regulations, there is not a chance of reaching this level. Should slum clearance come as a partial gift to recalcitrant municipalities from our federal treasury, there still remains the hopeless problem of rural housing for agricultural laborers and small farmers. In Sweden, farmers unable to meet the requirements for state loans for rural cottages, have been allowed to contribute their labor as part of the initial payment.

WHAT CHANGES IN NATIONAL POLICY DOES THE SOUTH NEED?

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In trying to answer the question of what changes in national policy the South needs, we must naturally ask ourselves what the problems of the South are. The answer to this must be that the South has two main problems. First, unemployment, and, second, low labor productivity. Of these two problems the first is the one which is more immediately pressing. This problem has its origins in causes which are both national and regional. The primary reason for unemployment in the South is that we have undergone a national and international business depression. If it were not for the causes which have produced this business depression in the whole nation, the problem of unemployment in the South would not be extremely pressing. The returns to labor might still be low but the greater part of persons now unemployed would be able to find employment either in the South or by leaving the South if only we had solved the problem of providing continuous purchasing power for the products which our economic apparatus is physically capable of turning out.

It is quite true that the problem of unemployment is made more pressing by the fact that the birth rate in the South is relatively high. To the extent that this is true, regional causes as well as national causes contribute to the seriousness of the southern unemployment problem. It should likewise be pointed out that the causes of unemployment in the South are not only regional and national but international as well. If it were not for the loss of our foreign market for cotton and, to a lesser extent, for tobacco, the unemployment problem in the South would be materially eased and, indeed, it is possible that the unemployment problem for the whole nation would be somewhat eased as well.

The problem of low labor return is more directly a regional problem although the causes for low labor return are likewise mutually inter-related. One cause, although not the major one, for low labor productivity is due to inferior education and training of the southern population, but this inferior training is in itself partly a result of lower labor productivity which is partly responsible for the smaller taxable resources which are a partial cause of inferior education and training. A more important cause of low labor productivity is the fact that such a large portion of the southern population is employed in agriculture on a relatively small expanse of

land and on land which has been so largely depleted of its fertility. Here again the factor of an increasing population has been of very great importance in producing this situation.

Confronted by these two basic problems of unemployment and low labor productivity we must try to find the answer as to what can be done about it from the standpoint of national policy. When we speak of national policy we usually mean either legislation or the administration of legislation, of which one of the most important aspects is the expenditure of funds appropriated in connection with legislation.

First, what can be done with respect to special legislation aimed at benefiting the South either to the exclusion of or in greater degree than other regions of the United States. The answer to this must be, I believe, that very little can be done beyond what has already been accomplished. Certain grants of funds might, indeed, be made for special southern projects either in connection with PWA, WPA, or enterprises such as the TVA. It is difficult to see places where further funds of this nature could be spent on a scale larger than the present to give a social return which would justify their cost, except to the degree made necessary to alleviate unemployment and to afford relief.

The existence of a high rate of tenancy in the South is unquestionably one of our problems which could be ameliorated by means of federal aid. A long range program of federal aid for farm ownership such as we have made a beginning with under the Farm Security Administration certainly seems desirable.

Until such time as we are able to have sustained economic recovery which would carry the index of industrial production far above the 1929 level there seems little alternative in national policy to continuing the present crop control of cotton and tobacco. Yet limitation of production and export subsidies are a confession of defeat so long as we must adhere to them. We shall never have a fundamental solution of the problem of agricultural surpluses until such time as we shall be able to sell domestically all the agricultural commodities which producers are willing to produce without special stimulation aside from the quantities which can be sold abroad without subsidies and upon the basis of commodity exchange.

This is to say that it is utterly fantastic as a permanent policy either to pay foreigners to buy our goods, to accept quantities of precious metals from abroad for which we have no need or to loan money to foreigners which we cannot hope to have repaid, in order to get rid of agricultural commodities. Instead, our primary hope must be to reach a stage of industrial activity such that the prob-

lem of agricultural surpluses will be solved by diminishing the supply of labor in agriculture on the one hand and increasing the demand for agricultural commodities on the other.

All this, of course, is elementary. Moreover everyone hopes that industrial production will increase as much as possible and everyone knows that this would aid in the solution of the agricultural problem. What is often forgotten is that the problem is one primarily of economic theory. There can be no doubt that we are physically capable of producing enough industrial products so as to use up surplus agricultural labor and vastly increase the demand for agricultural products. It has been a basic tenet of orthodox economic doctrine that producers of agricultural and industrial products could produce untroubled by any general difficulty in finding a market. While the price of corn might be lower than was satisfactory to corn growers, or the price of shoes to shoe manufacturers, there could exist no overall difficulty in finding a market for commodities in general. This principle was embodied in what was commonly called Say's Law.

Observation during the last ten years must tell us that an over-all difficulty does exist. We find corn, cotton, wheat, tobacco, cabbage, onion and orange growers confronted by serious difficulty in finding markets for their products at the same time that difficulty exists in finding a market for the number of automobiles, shoes, radios, suits of clothes and houses which we are quite capable of producing. The causes for this situation are very complex but until we realize the importance of the general problem and realize that our economic theory has been written largely on the assumption that the problem does not exist we are not likely to find a permanent solution for the agricultural problems of the South.

It is obvious also that the South would benefit in comparison with other areas by federal aid to education, but, as in the case of other subsidies, the question must arise of how far the policy of regional subsidies can be advantageously carried.

It does appear desirable that the present system of social security could be advantageously expanded in the South. On account of the disparity in wealth and income between the South and the remainder of the United States it is obvious that a larger federal contribution to social security payments would be an advantage to the South. But some sort of limit upon federal subsidies to the states must inevitably be reached and this limit is probably not far distant.

The possibilities of the regional redistribution of the national income through the medium of the federal treasury presents problems in economic theory, social justice and social efficiency which are

fascinatingly complex. It is true that our economic institutions of private and corporate property, our complex price system and the balance of political power has produced a situation where the ownership of claims to income is situated in the region where the bulk of our raw materials are not produced. It is no doubt natural that the producers of our wheat, corn, oil, and copper, as well as of our cotton, should raise the question of why they should accept an institutional structure which is less advantageous to them than one which included the Treasury of the United States as an essential part of the machinery of income distribution. Nevertheless it must not be forgotten that the question may likewise be raised of how pertinent the location of the source of raw materials is, after all, to the ethics of income distribution. Further, it can hardly be doubted that there is some validity to the misgivings of "economic royalists" as well as others with respect to the nightmarish possibilities involved in concentrating too much of our attention on preparing the most daring and profitable political *razzias* possible on the Treasury.

We have recently had changes in national policy with respect to aid given to collective bargaining, social security, the maintenance of labor standards, and so on, which have undoubtedly improved the relative position of the workers in southern industry. The full effect of these improvements through these desirable changes in national policy which have already occurred will likely only become apparent with the return to business prosperity for the United States as a whole. Desirable as these changes in national policy which improved the position of labor were, it seems that these changes have gone as far as they could be advantageously pushed until a further upswing in the production of industry can take place. Furthermore, the aid which has been given to collective bargaining makes it likely that workers in industry will be able to look after their own interests with less need for special legislation in the future. Indeed, there is even some possibility that the power which labor has obtained through labor legislation might conceivably be unwisely used in the future.

Changes of national policy favorable to the South have been most often proposed in connection with the tariff. There can be no doubt that the tariff policy of the United States over a long period of its history has discriminated against the South. We all know the story of the subsidy to northern industry which the tariff provided at the expense of southern agriculture. The situation has now changed fundamentally, however. Before the depression, industry in the South was growing rapidly. This growth of industry in the South was laying the basis for an improvement in the standard of

living which never would have been possible had the South remained almost exclusively agricultural. To the extent that the tariff promoted this growth of industry, even at some cost to agriculture, it is probable that a real advantage accrued to the South.

It is perfectly true that the advantages of this growth in industrial production in the South did not accrue equally to all classes. Just as is almost always true, in the early stages of industrial growth this movement was associated with great gains to wealth and income on the part of a relatively few individuals and by a considerable exploitation of the masses of workers employed in these industries. It is quite probable, nevertheless, that the standard of living of these workers was in many ways higher than it would have been had the South remained almost exclusively agricultural.

It must, furthermore, not be forgotten that the classical argument for free trade did not include the contention that removal of tariff barriers was a cure for business depressions and unemployment. Tariffs were supposed to lower the efficiency of production through interference with the principle of international division of labor and within the assumptions made this was perfectly true. The whole orthodox theory not only of international trade but of the functioning of the whole economy was based, however, upon the assumption of full employment of resources. In an economy in which a large proportion of idle resources has become, I fear, almost chronic, conclusions based upon the assumption of full employment must be regarded with considerable suspicion.

For example, I doubt very seriously whether it could be demonstrated that either the South or the country as a whole would benefit by removing restrictions upon the entrance of Japanese made textiles into the United States. It is interesting to note that while classical economists would have argued for the removal of trade barriers in this case on the grounds that consumers would be able to obtain textiles more cheaply, the argument to which we would now be inclined to give more weight would be that by so doing we would enable the Japanese to buy more of our raw cotton.

It is quite probable that this latter effect would indeed take place so that we should have to answer the question of how much the gain to cotton producers in sales to Japan would surpass their losses in sales to American textile manufacturers. We should then have to try to balance off the lowered cost of textiles to consumers against the losses in returns to labor and capital employed in our own textile mills. Certainly the problem is a far more complex one than it would be if there were no actual or potential unemployed factors and it is, I believe, simply impossible to give a quick answer

in favor of tariff removal of the sort that classical doctrine would have at once given.

I have devoted too much time, no doubt, to stating what is largely a negative case; namely, that the South does not now stand in great need of changes in national policy which would involve special legislation. From a positive standpoint the South needs what the rest of the country needs; namely, sustained economic recovery. But, alas, it is not easy to lay out a blue print which if it were to be followed would produce that happy result. The conditions for economic recovery are a complex depending upon the wage, dividend and price policy of corporations, the wage policies of trade unions, monetary and banking policies of the Federal Reserve Board and the Treasury, the state of confidence of business executives, the distribution of wealth, federal and state tax and expenditure policies, and other factors too numerous to mention. I am expressing the opinion elsewhere that the sooner we realize that many of the decisions involving these policies must be taken with an eye to their effect upon the maintenance of purchasing power the sooner sustained economic recovery will be possible.

Given economic recovery, progress towards the solution of the twin problems of the southern economy; namely, unemployment and low labor return, is likely to be attained in two ways. Labor will move from the South to employment opportunities in the rest of the country. This is inevitable because of our differentially high birth rate and because of the stoppage of immigration.

It seems likely that southern industry on the next wave of economic recovery will likewise expand at a rate greater than that for the nation as a whole. The advantage in labor supply which the South offers plus certain other advantages seem likely to produce a still further expansion in some of the newer industries such as the chemical industry.

It is not particularly pertinent to this paper but I may remark that one of the most positive services to economic progress which could be rendered would be for the universities of the South to maintain the closest possible relations with industry and to orient the instruction of their graduates in the fields of engineering, chemistry, economics and business towards discovering possibilities for the inaugurating of new industries. I am convinced that the development of the textile industry in the South, often to the exclusion of all other industries, has been motivated to a considerable degree by the circumstance that no one ever thought of starting anything different.

Perhaps I may be forgiven for closing with another aside by say-

ing that it would likewise be of enormous social value if those of us who teach the social sciences could do our part to see that these same graduates of our colleges and universities of the South did not leave their institutions with the fixed belief that the economic salvation of the South lay in keeping wages as low as possible.

DISCUSSION BY FRANCIS P. MILLER

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I shall confine myself to the question "What Changes in National Policy Does the South Need?" I am in substantial agreement with most of Mr. Hoover's statement, but I should like to make one reservation in the form of a footnote and to add one or two supplementary observations.

My footnote reservation concerns the tariff. I suppose all of us would agree that in a more normal world increasing international trade would benefit the United States as well as the rest of the world. Obviously, the world is far from normal and Mr. Hoover suggests that economic maladjustment has become "chronic." Under these conditions a protective tariff benefits Southern industry and, consequently, the economic life of the region as a whole.

I recognize the force of this argument. But it is important to distinguish between long-term objectives and short-term necessities. The essence of statesmanship is to avoid allowing the pressure of short-term necessities to jeopardize the eventual realization of the long-term objectives.

Further, it is possible that world conditions may change rapidly during the next few years. There is a chance that even during our life-time the trend may shift to freer trade between nations.

In any event the benefits of a tariff should always be mentioned with the greatest reserve. Once the virus of high protection has entered the body politic, it requires generations to get rid of the infection. Because of the traditional free-trade sentiment of the Southeast, the support of that region could normally be relied upon for a policy of increasing trade between nations, when that policy once more becomes politically practicable. It would be nothing short of a national tragedy if the pressure of short-term necessities resulted in the Southeast's acquiring Pennsylvania's protection fixation at the very time when New England and the Middle States might be prepared to accept a more moderate policy.

My supplementary observation on Mr. Hoover's paper has to do with the relation of national policy to the social patterns of the people. Once last summer when I was in the Huntington Library in California I read some sections of the diary of William Byrd who was agent of the Colony of Virginia at the Court of St. James 1697-1702. The diary contained various memorials which Mr. Byrd presented to His Majesty in Council. One of these memorials sounded like a contemporary document. It was a plea that the colonists be not compelled to grow only the one crop of tobacco because of the unfortunate consequences which would result in years of crop failure or when the market broke through surplus production. His

Majesty thought otherwise. Thus Imperial policy fixed upon the people of the Southeast a custom. As generation succeeded generation cotton was added to tobacco and slave made way for tenant and share-cropper. The one-cash-crop custom had by this time become the social pattern of agricultural society. It was a part of the very fibre of the people's minds and determined the characteristic features of all their social, economic and financial relations. This social pattern is the curse of the agricultural Southeast. Improving farm life in the Southeast means changing this social pattern.

It is being changed by historic developments. The change can be facilitated by education—practical education on the land, and theoretical education in the schools.

The best example of practical education on the land that I can give is the rehabilitation program of the Farm Security Administration. There are some changes in national policy that the South does not "need," but "fears." One of our fears is that with a change of national administrations this program might be discontinued. The present Federal Administration is the first one since the War Between the States that has taken the Southeast seriously as a part of the Union. We are grateful for this and we want to remain in the Union and enjoy its benefits.

As far as theoretical education in the schools is concerned, I want to go on record as favoring Federal grants in aid to states which cannot provide adequate secondary school systems themselves. In support of this position I would like to quote the opinion of a representative group of Southerners who met in Atlanta on January 15, 1939 to draft a working economic plan for the South. They said:

"We recommend that the Federal Government make appropriations that will make possible the equalization of educational opportunities in the several States of the Union.

The principles governing the appropriation of these funds should be equitable distribution between the races and democratic distribution among the States according to the economic ability of the States and the number of children per adult population, with State control over administration and curriculum.

A few facts will demonstrate the need for this action. In 1930 the farm people of the United States received 9 per cent of the Nation's income and supported 31 per cent of the Nation's children. The average wealth per school child in the United States is \$10,200, while the average wealth per school child for the Southern States is \$4,900. The average annual income per school child in the United States is \$2,171, whereas in the Southern States it is \$872.

Despite the fact that the Southern States pay a higher proportionate part of their incomes for education than the Nation as a whole, the average annual expenditure per pupil in daily attendance in the South is \$25.11 as against \$74.30 for the United States as a whole. Southeastern farm people with approximately 4,250,000 children received 2 per cent of the National income while Northeastern non-farm people with approximately 8,500,000 children received 42 per cent of the National income.

While these facts illustrate the educational condition of the South it should be remembered that this situation constitutes a National problem.

An economic social and cultural lag in any part of the country is an economic social and cultural menace to all parts of the country. Forty per cent of the young people 10 to 20 years old on farms in 1920 were in cities in 1930 and 60 per cent of this net migration was from Southern rural areas. The quality of the education in these rural areas is therefore a matter of vital concern to the industries, the cities and the people of the whole country.

The Federal Government is the only agency which can redress this economic and educational imbalance between the metropolitan areas of the greatest concentration of wealth and rural areas of the greatest concentration of children in relation to adult population.

Since all sections, all resources and all the people combine to produce the wealth concentrated in the great centers, and since all the people as consumers help pay the taxes on this wealth, it is just that a small part of the income from this wealth should go back to the States whence it came, as Federal aid to education, for it is in the poorest States that is found the largest proportion of children whose equality and quality of education will determine the future of democracy in America."

Finally I should like to say that in my opinion one of the heaviest millstones around the neck of the agricultural Southeast is the curriculum of its secondary schools. That curriculum is for the most part utterly unrelated to the land or to living on the land. Its effect is to create a type of mind that is easily enticed from the land to the city. Erosion of the Southern people has accompanied erosion of their land. They are being washed off the farms in part because the schools, instead of providing them with skills and interests needed on the land, provide them with a smattering of information only useful, if at all, in urban centers.

Anyone interested in the future of agriculture should give thought to the curriculum of rural schools.

ALLOCATION OF MILK SUPPLIES AMONG CONTIGUOUS MARKETS

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The theory applicable to the problem of allocating milk supplies between competing markets and to the related problem of fluid milk price policy has been carefully developed by a number of writers.¹ Unfortunately, the principles developed in these studies have not been extensively applied to the problem of reducing the cross-hauling and duplication of collection and transportation facilities that commonly characterize the supply relationships existing between adjacent markets and between competing distributors.

In order to clarify the price relationships involved, these writers have usually assumed: (1) that production is uniformly distributed over a plane surface; (2) that transportation can be effected with equal ease in all directions; and, (3) that transportation costs are directly proportional to the distance between farms and markets.² Upon the basis of these assumptions, it has been demonstrated that the ideal adjustment for an isolated fluid milk market would be a circular supply area whose radius is just large enough to include an area adequate to supply the market. It has likewise been demonstrated that if two markets of equal size are so located that an ideal adjustment of the supply area for one would encroach upon the other, the ideal adjustment between the two markets would be indicated by the perpendicular bisector of a straight line connecting the two markets. Similarly, if the markets are of unequal size (and are so located that an ideal adjustment for one would encroach upon the other) the partial circles describing the supply areas of the respective markets will be of unequal size and the adjustment of supply areas between them will be described by a hyperbola, convex toward the larger market, on any point of which the difference between the distance to the two markets will be a constant equal to the difference between the radii of the respective partial circles limiting the supply areas of the two markets after

¹ For discussions of the principles involved, see: John M. Cassels, *A study of fluid milk prices*, Harvard University Press, 1937, especially Chapters II, III, IV; E. W. Gaumnitz and O. M. Reed, *Some problems involved in establishing fluid milk prices*, USDA, AAA, Dairy Section, 1937, Chapter IV; John D. Black, *The dairy industry and the AAA*, Brookings Institution, 1935; and F. A. Fetter, *The economic law of market areas*, *Quar. Jour. Econ.*, 1924.

² It is not necessary to assume that the regression line describing the distance-cost relationship will pass through zero, but merely that this relationship can be accurately described by a straight line.

each area has been expanded until it is adequate to meet the requirements of its market.

In any actual supply area it is of course obvious that production is not uniformly distributed and that transportation can not be effected with equal ease in all directions. The relationship between transportation costs and distance from market also appears to be slightly curvilinear. Within the range of distances involved in local shipments, however, the curve closely approximates a straight line.

In our studies of the supply problems of 14 local markets whose supply areas overlap to a considerable extent, we assumed tentatively that the direct distances between farms and their respective markets would furnish accurate indicators of the road distances over which milk would actually have to be transported. Equally spaced concentric circles were drawn around each market on a map showing the actual location of producers.³ Various radii for the supply areas of each of the markets were then assumed; the positions of the hyperbolas dividing the market areas resulting from these assumptions were noted; and the supplies available within each market area were computed.

If, for example, radii of 63 and 41 miles were assumed for markets X and Y respectively, the hyperbola dividing these markets would be so drawn that from any point on it the difference between the distance to market X and to market Y would be 22 miles. This would mean that, in order to get an adequate supply of milk, market X would have to reach out 22 miles farther for its milk than market Y. Any change in the radius assumed for any market would obviously change the border lines between its supply area and those of all adjoining markets. If the supply areas for these markets were then either inadequate or superfluous in relation to the requirements of their markets, further adjustments would have to be made in their radii. Through simultaneous adjustment of the radii for each of the various markets, a solution was eventually reached for each market which was consistent with its requirements, with the requirements of contiguous markets, and with the radii assumed for it and for each of the other markets.

The location of the sources of supply with respect to their markets before and after reallocation were compared by determining the weighted average direct distance that cows were from markets under the two situations. Since an ideal adjustment was sought for all of the markets considered jointly rather than for any particular one of them, the only comparison that could be made was between

³ A punch card was used for each producer, on which was indicated the direct distance from the producer's farm to each of several possible markets, the number of cows on the farm, data pertaining to the quality of the milk, etc.

the *total* existing supply situation and that which would prevail *in toto* after reallocation. This comparison indicated that, on the average, the sources of supply would be somewhat closer to their respective markets in the revised areas than they were in the actual supply areas. Under the actual allocation the weighted average direct distance that each cow was from its market was 18.36 miles, with a standard deviation of 14.96 miles; the distance under the revised allocation was 17.33 miles \pm 11.86. Since both of these averages were in terms of direct distance (measured from the concentric circles) it was necessary to relate direct distances to actual road distances. The correlation between direct and actual distances (the latter being the distance from the farm to the nearest paved road and from there by the most direct paved route to market) was .9983 \pm .0002.

The high coefficient indicates that there was a very close relationship between direct distances and actual road distances. This relationship would probably not be so close in areas where there are fewer roads than there are in Connecticut. The actual road distances were of course greater than direct distances. The regression equation describing this relationship was $X = 1.0211A + 1.3564$, when X equals actual road distance and A equals direct distance. The standard error of estimate was 1.1534 miles. At prevailing rates it costs about one cent per hundredweight-mile (actual road distance) to transport milk in this area. On this basis the shifting of sources of supply through revision of the supply areas would reduce transportation costs about \$70,000 per year for the state as a whole.

Parenthetically, it should be noted that the quality of the supplies thus allocated to each market was also compared to its actual supplies. No statistically significant differences were noted either with respect to the butterfat content, bacterial count or sediment test of the milk, or with respect to the barn scores of the producers or seasonal variations in production. This was not surprising since a considerable part of the actual supply area of each market was generally included in the revised area.

The most important result of the re-allocation consisted in the consolidation of the sources of supply for each market so that direct truck routes could be laid out on which the correct system of trucking could be employed (such as small trucks for collection and large trucks for delivery), and on which the size of the truck could be adjusted to the available load. A study of truck routes in the Hartford market indicated that prevailing transportation costs could be reduced approximatedly 33 per cent through these changes. If similar economies could be effected in other areas, it

should be possible to reduce transportation costs approximately \$540,000 per year for the state as a whole.⁴

The re-allocation study, finally, throws into sharp relief one of the major forces that needs to be taken into account in the formulation of fluid milk price policy. Under perfectly competitive conditions, all of the milk in Connecticut would be used as fluid milk, and there would be only one price for milk of similar quality in any given market at a particular time. Assuming that milk could be transferred readily from one market to another, the prices in the different markets would differ by an amount equal to the differences between the costs of transporting milk to the markets. The differences between the radii of the various supply areas, when multiplied by the per hundredweight-mile cost of transportation furnish criteria for determining what the differences between market prices should be. The maximum difference between the radii of the various supply areas was 45 miles. If it costs one cent per hundredweight mile to transport milk, the difference between the highest and the lowest price markets in the state should be 45 cents per hundredweight. The prevailing difference between the Class I prices in these two markets is actually 46 cents per hundredweight. This difference exists, however, not because differences in transportation costs have been taken into account, but because the presence of a large number of producer-distributors has made it administratively difficult to maintain a higher price in one of them. Prices in the other markets unfortunately are not so well adjusted. The present Class I price is the same in all markets except those in the eastern part of the state. On the basis of transportation costs, the prices in Hartford and Waterbury should be approximately 20-25 cents lower than those in New Haven and Bridgeport. The composite prices (weighted average of Class I, II, and III) are even less well adjusted. There is so much variation between distributors in the proportion sold as Class I milk that, in the absence of market wide equalization, the high and the low composite prices paid to producers delivering the same quality of milk to the same market usually differ by 50 to 70 cents per hundredweight.

A study of these internal adjustments obviously provides no definite criteria for determining the relationship that should prevail between the prices of these local markets and those of the large adjacent markets. Application of a similar procedure to these other markets would, however, yield this information. Inspection of the location of these markets in relation to the local markets, and in relation to the respective supply areas, indicates that the prices of

⁴ This estimate includes economies resulting from revision of the supply area as well as those resulting from changes in the transportation system.

fluid milk in Connecticut markets should be slightly lower than the price in New York City, about equal to the price in Providence, and somewhat higher than the price in Boston.

Summarizing the results of these studies it appears legitimate to draw the following conclusions:

1. that important economies can be affected through re-allocation of supplies among adjacent markets;
2. that the consolidation of supply areas through re-allocation will facilitate re-organization of transportation routes through which appreciable reductions in transportation costs may be effected; and,
3. that a study of these inter-market relationships will furnish criteria of inestimable value in connection with the important problem of formulating fluid milk price policies.

TRANSPORTATION AND COUNTRY ASSEMBLY OF MILK

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The preceding section of this paper has been primarily devoted to a consideration of inter-market relationships and the determination of market supply areas. The following section deals with the organization of milk assembly within these areas. Three phases of country assembly will be considered: first, farm collection and transportation to country plants; second, country plant operation; and, third, plant to market transportation. The object of the analysis will be to determine the most economical combination of these three elements, or to discover the optimum size of plant, of plant production area, and of transportation. From this standpoint the problem may be thought of as a small edition of the problem previously discussed. The most important difference is that market locations and market demands are given in the previous case, while location and volume are to be varied in the present case in order to determine the most efficient organization.

It has been stated, frequently and correctly, that the optimum size of country plants can only be determined by considering plant costs, collection costs, and transportation costs simultaneously. The least possible cost for any one of these factors is not the objective, but the minimum combined cost of all three. In order for the combined costs to have this significance, it is obvious that the separate cost relationships must describe the most efficient organization for each element.

Existing collection routes usually involve a large amount of route duplication and of excess truck capacity. In the present problem, however, it is necessary to indicate the relationship between average cost and the total volume assembled at one point when these inefficiencies have been eliminated. The preliminary results of a reorganization study¹ made in a Connecticut area indicate that the average cost per hundredweight increases as the total volume collected increases, and that the increase is at a decreasing rate. This relationship is shown by the curve labeled "Collection" in the following figure. The costs apply to an area where the density of production averaged 370 pounds per square mile. Collection costs will be higher in lower density areas. The preliminary analysis indicates that the primary effect of changes in density is to shift the level of the cost-volume curve rather than to change its slope. It is true,

¹ D. O. Hammerberg, University of Connecticut. Unpublished manuscript.

however, that the exact nature of the relationship will depend on local conditions of density of production, location of roads, and road conditions, and that, as a result, the relationship will be unique in every case considered.

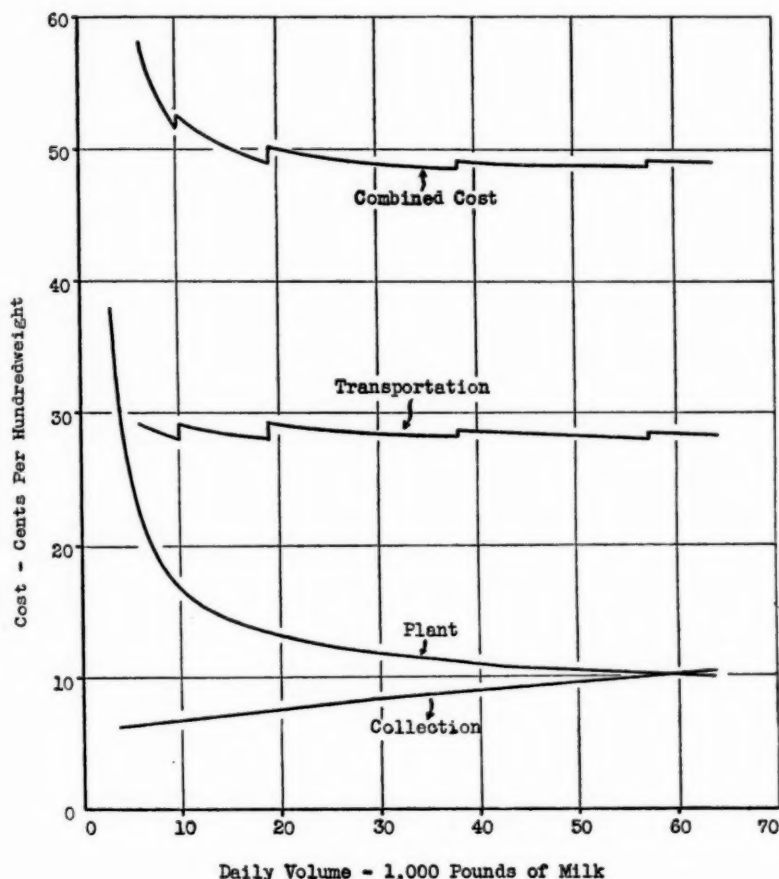


FIG. 1. THE RELATIONSHIP BETWEEN DAILY PLANT VOLUME AND THE COST PER HUNDREDWEIGHT OF MILK FOR COLLECTION, PLANT OPERATION, AND TRANSPORTATION.

Just as the relationship between collection costs and volume must be based on an efficient organization, so the plant cost-volume relationship must describe a situation where inefficiencies have been eliminated. Plant efficiency as defined by country plant operators involves a number of elements such as plant lay-out and

the efficiency of equipment. It also involves the more important relationship between plant volume and plant capacity. Generally speaking, an efficient country plant is one where plant volume is adjusted to capacity within the limits imposed by the seasonal variation in production. In the present problem it is necessary to know the relationship between volume and plant costs when volumes are adjusted to capacity. This will represent the economies of large scale operation.

The curve labeled "Plant" in the accompanying figure shows the effect of scale of operations on plant costs per hundredweight for fluid milk plants shipping in tank cars. This is based on the individual cost-volume relationships for a number of plants of varying capacities. The curve is drawn through points representing the average annual costs per hundredweight when the peak load for each plant is approximately equal to the designed capacity of the plant. It will be noted that there are pronounced economies of scale in the low volume ranges but that a point is soon reached beyond which the reductions in costs accompanying increases in capacities are small. The exact shape and level of the curve will vary somewhat depending on local conditions with respect to such items as taxes, electric rates, and seasonal variation in production. These variations will not affect costs per hundredweight greatly, and will distort the slope of the curve even less.

The economies of large volume shipments from country plant to market have often been pointed out. A recent study² of this relationship, however, indicates that the advantages to be gained through large volume shipments from a single plant probably have been over-emphasized. The present Boston area freight rate for the transportation of a hundredweight of milk by tank car from the 200 mile zone is approximately 27 cents. The minimum car load volume is 2,000 gallons or about 17,000 pounds. For shipments of less than 17,000 pounds the total freight charge will be equal to the total charge for a minimum car load. It is possible, however, to load tank cars at a number of points without extra charge so long as the total revenue collected by the railroads will be at least equal to the minimum car load revenue from the most distant plant. From a practical standpoint tank cars are frequently loaded at two different plants and could be loaded at one or two additional plants.

In addition to the freight rate, car leasing costs must be considered. The common leasing arrangement in the Boston market is based on a daily rental of \$7 per car. The railroads pay to the lessee an amount equal to $2\frac{1}{2}$ cents per mile for the round trip mileage. In

² Lorne Sonley, University of Vermont, Study for Master's Degree Thesis.

the 200 mile zone this payment would be \$10 per day. The plant operator would ordinarily need two tank cars in order to make daily shipments, so his net tank car rental would be \$4 per day. A plant located in the 200 mile zone handling a daily average volume of 30,000 pounds would thus have an average transportation cost of approximately 28.4 cents per hundredweight. The variations in the net transportation cost per hundredweight are shown by the curve labeled "Transportation" in the preceding figure. The discontinuity of the curve is the result of the necessary adjustments in the number of plants shipping in a single car or the number of cars required for a single plant. The exact volume at which these breaks occur will depend on the seasonal variation in production. In the present case, they come at 19,000 pounds, 38,000 pounds, and 57,000 pounds per day. Costs per hundredweight are almost identical at these points, amounting to approximately 28 cents. The abrupt increases in cost that occur at these points offset the decreasing tendency in each segment of the curve, so that there are no consistent economies of large scale shipment. Mention has been made of the effect of local variations in production on this relationship. In addition, the net leasing cost per day for tank cars decreases as distance from market increases up to the point where it is necessary to have three cars in order to make daily shipments. The relationship accordingly, will be different for every case considered.

The combination of the three elements will show the total economy of large scale operation. This is the "Combined Cost" curve in the preceding figure. Total costs per hundredweight decline as volume approaches 19,000 pounds per day. Beyond that volume the tendency to decrease is offset by the abrupt increases noted in transportation costs. This means that the optimum size of country plant when all factors are considered is 19,000 pounds or higher. Beyond that capacity there are no regular economies or diseconomies of scale. In the given illustration, the combination of plant and collection costs reaches a minimum at a volume of approximately 50,000 pounds. The cost of this volume is only a fraction of a cent less than the cost at 60,000 or 40,000 pounds. When transportation costs are added the curve becomes discontinuous and the low point occurs at 38,000 pounds. The combined cost at this volume is 48.6 cents per hundredweight. The cost at 19,000 pounds is 49 cents while at 57,000 it is 48.8 cents. The cost is less than 49 cents through nearly all of the range between 30,000 and 57,000 pounds per day.

As has been pointed out, the cost associated with each of the three elements is to some extent unique for each case considered.

Collection costs will vary with road conditions and density of production. Plant costs will be affected by such factors as local taxes, electric power rates, and the seasonal variation in production. The freight rate per hundredweight of milk is obviously related to location or distance from market, as is the net leasing cost of tank cars. As a result, the relationship between average combined costs and scale of operation will be unique for each case considered. For the most part these factors will tend to raise or lower the level of the combined costs curve, however, rather than to change its slope.

In the light of the foregoing discussion, it is possible to reach several conclusions: first, that the optimum total adjustment of the country phases of milk marketing is dependent on the efficient organization of each phase; second, that the combination of plant, collection, and transportation costs indicates that the economies of scale are exhausted in the low volume ranges, and that beyond 20,000 pounds of milk per day there are no uniform economies or diseconomies; third, that the relationship between combined costs per hundredweight and volume or capacity will be somewhat different for each case considered; and fourth, that there will be, for every case, a particular capacity where average combined costs are minimized, but that there probably will be a wide range in capacity where average combined costs will be within one-half cent of this minimum.

MARKET-SHARING IN THE PACKING INDUSTRY*

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"It is nought, it is nought, saith the buyer. But when he is gone his way then he boasteth."—PROVERBS XX, 14.

I. Background

Market-sharing of some sort has apparently been a phenomenon of the packing industry for 40 or 50 years. Between 1890 and 1902 it took the form of dressed-meat pools in which quotas on dressed meats and division of sales territory were established for the several large firms. These pools were halted by Supreme Court injunction in 1903. The large packers next tried to form a merger—a common means of evading the anti-trust laws at that time—but the financial panic of 1903 prevented its fulfillment. From 1903 to 1912, however, the three major packers jointly owned property resulting from the attempted merger, until threat of a civil suit brought its dissolution.

The Federal Trade Commission in 1918 charged that, from 1903 on, market-sharing took "the form of a livestock pool, providing substantially for the division of purchases of the cattle, sheep, and hogs sent to market according to certain fixed percentages."¹ Evidence was presented indicating marked constancy of purchase percentages among the "Big Five"² from week to week and even greater constancy from year to year. On the basis of such constant percentages, the Commission concluded that

"without collusion beyond the agreement to divide purchases, the market price is bound in the long run to be the lowest price which will keep the producers raising [livestock]. . . . With each packer purchasing only a certain percentage of livestock . . . , each is bound to have relatively the same proportion of meat for sale. . . . In brief, the prearranged division of livestock purchases forms the essential basis of a system, by which the big packers are relieved of all fear of each other's competition and, acting together, are able to determine broadly not only what the livestock producers receive for their cattle and hogs, but what the consumer shall pay for his meat."³

So much for the "ancient history" of market-sharing, which is doubtless familiar to most of you.

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¹ Federal Trade Commission. Report on the Meat-Packing Industry. Summary and Part I, p. 49; pp. 46-51.

² Two of the five merged in 1923, so that we now have the "Big Four."

³ Federal Trade Commission, *op. cit.*, p. 77.

WEEKLY PERCENTAGE OF "BIG FOUR" HOG PURCHASES
TAKEN BY ARMOUR, SWIFT, CUDAHY AND WILSON,
AT 5 TERMINAL MARKETS, 1936

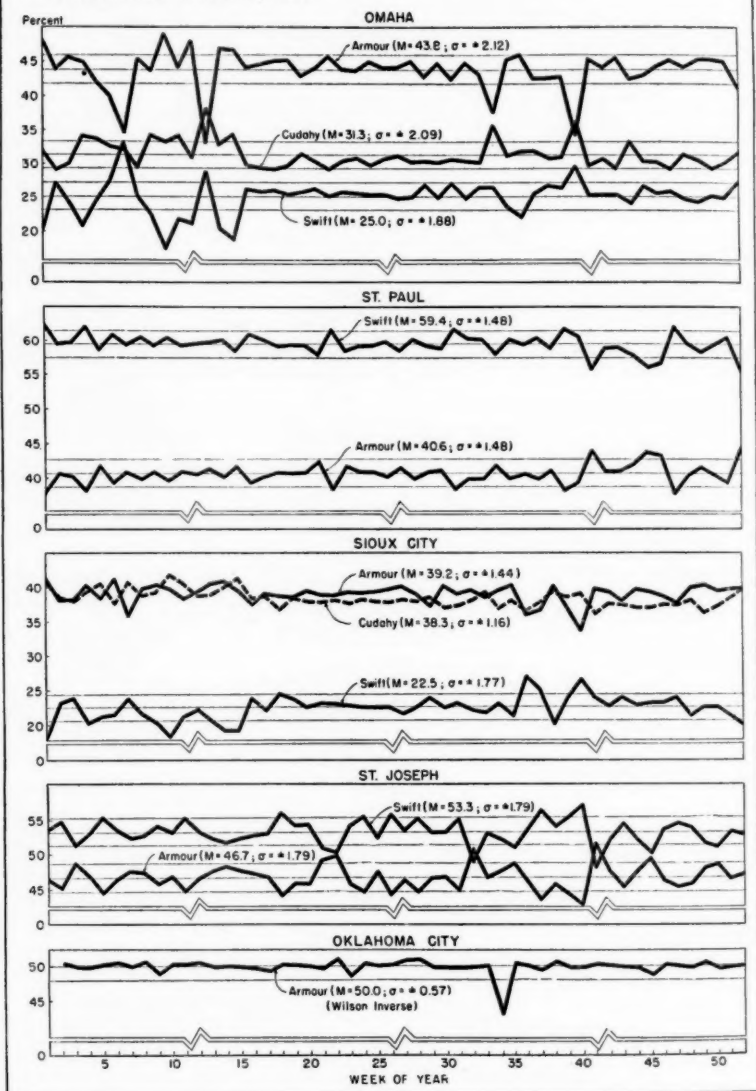


FIG. 1.

Of the sets of three light horizontal lines, the middle line in each case indicates the mean percentage (M) for the year, and the other lines a range of plus or minus 2 per cent about this mean. The standard deviation (σ) of weekly percentages about this annual mean, shown numerically above for each company in each market, fell within the indicated range in every market except Omaha during 1936. The horizontal lines were omitted for part of the Sioux City market to avoid the confusion of too much overlapping.

II. Some Facts

The first question of interest is whether constant percentages have continued since 1918. Reports of purchases of livestock in the leading terminal markets by companies appear weekly in the National Provisioner. Since only on-market purchases are reported, these data are adequate only for those markets where direct receipts of hogs and cattle have been relatively unimportant—namely, Omaha, St. Paul, Sioux City, St. Joseph and Oklahoma City.⁴

Time will permit the detailed examination of only one market for the period 1931–37, in order to indicate the method of investigation, and a summary statement to indicate the results in the other four markets. The most interesting market is Omaha because (1) data are available for the longest period; (2) it is the most important of the markets studied; and (3) weekly purchase percentages were, on the whole, less constant there than in any of the other markets studied.

Briefly the Omaha situation is this. During 1931–37 three of the “Big Four” firms—Armour, Swift, and Cudahy—were purchasing hogs at Omaha.⁵ The number of hogs purchased by each of these firms was computed as a percentage of total “Big Four” hog purchases at Omaha by weeks. The results for a selected year (1936), with comparable data presented for the other four markets studied, are found in figure 1. The year 1936 was a rather typical year, week-to-week fluctuations in purchase percentages on the five markets being the same or less in 1931–33 and greater in 1934, 1935, and 1937. Weekly percentages at Omaha fluctuated relatively widely during the early part of 1936, then settled down to relatively small variations for most of the remaining weeks of the year. Whether we call these fluctuations “constant” or not is largely arbitrary. It is also important to note that a sudden fluctuation in percentages might mean increased competition, but might just as well mean that one or more of the large buyers chose to “lay off” the market during certain weeks. The lower parts of figure 1 reveal that no other markets studied showed as wide fluctuations in weekly percentages as did Omaha. Furthermore, fluctuations at Omaha tended to be wider in 1935–37 than in 1931–34, indicating that the effect of short hog supplies resulting from the severe droughts of 1934 and 1936 may have been to increase variations

⁴ In some markets, where the percentage (on an annual basis) of cattle receipts bought direct is relatively small, the *seasonal variation* of direct receipts is so wide as to render the data inadequate.

⁵ The fourth firm (Wilson) entered the Omaha market in early 1938 by buying the Dold plant there.

TABLE 1. HOGS: PERCENTAGES OF TOTAL "BIG FOUR" PURCHASES TAKEN BY EACH OF THE FOUR FIRMS BUYING AT FIVE TERMINAL MARKETS, AVERAGE 1913-17, BY YEARS 1931-37, AND AVERAGE 1931-37.¹

Market and Firm	Av. Annual Standard Deviation 1931-37 ²	Annual Average Purchase Percentage						Percentage av. 1931-37	Percentage av. 1913-17	Estimated Percentage 1906-11 ³
		1931	1932	1933	1934	1935	1936			
<i>Omaha</i>										
Armour-Morris ⁴	± 2.17	45.2	45.2	44.1	45.2	44.2	44.0	44.6	46.6 ⁵	45
Swift	2.06	24.4	24.4	25.2	24.9	24.7	24.9	24.8	24.2	25
Cudahy	1.88	30.4	30.4	30.7	29.9	31.1	31.1	30.7	29.2	30
<i>St. Paul</i>										
Armour	1.97	40.3	40.2	39.9	39.6	40.0	40.6	40.6	no plant	—
Swift	1.97	59.7	59.8	60.1	60.4	60.0	59.4	59.4	—	—
<i>Stout City⁶</i>										
Armour	1.89	39.8(50.1)	38.2(49.6)	38.7(50.1)	38.6(49.9)	38.1(49.6)	39.2(50.6)	38.8(50.1)	—(50.3)	—
Cudahy	1.68	39.7(49.9)	39.1(50.4)	38.6(49.9)	38.8(50.1)	38.7(50.4)	38.5(49.4)	38.8(49.9)	—(49.7)	—
Swift	2.12	20.5(—)	22.7(—)	22.7(—)	22.7(—)	23.2(—)	22.5(—)	22.4(—)	no plant	—
<i>St. Joseph</i>										
Swift	1.84	57.8	55.6	55.1	52.9	53.1	53.3	53.8	48.4	—
Armour-Morris ⁴	1.84	42.2	46.4	46.9	47.1	46.9	46.7	46.2	51.6 ⁵	—
<i>Oklahoma City</i>										
Armour-Morris ⁴	1.09	49.9	50.2	52.3	50.3	50.1	50.0	50.4	50.6	—
Wilson,	1.09	50.1	49.8	47.7	49.7	49.9	50.0	49.6	49.4	—
Average, 5 markets	1.80									

¹ Data for 1931-37 computed by W. H. Nicholls and I. W. Arthur from weekly reports of National Provisioner. Data for 1913-17 computed from Federal Trade Commission, *op. cit.*, Part II.

² Testimony of former hog buyer for major company at Omaha, Federal Trade Commission, *op. cit.*, Part II, p. 9.

³ Armour and Morris merged in 1923. Figures for 1913-17 and 1906-11 are the total of Armour and Morris percentages at each market.

⁴ Standard deviation of weekly percentages from annual mean percentage was calculated for each year 1931-37 and then average 1931-37 computed. Slight adjustments, involving elimination of a very few obviously extreme items, were made for St. Paul (1935); St. Joseph (1931 and 1937); and Oklahoma City (1935).

⁵ Swift had no plant at Sioux City in 1913-17. In order to compare recent data with those of the War years, the figures in parentheses were calculated to show Armour and Cudahy relative to each other if Swift is omitted.

somewhat on that market. For the period 1931-37 as a whole, however, two-thirds of the weekly purchase percentages at Omaha fell within an average range of 2.2 per cent above or below the respective annual mean percentages of the three large companies. No other market studied showed variations as wide as this (see average standard deviations in table 1).

Week-to-week variations in percentages might be expected to be fairly constant, however, regardless of competitive conditions, simply due to the very short-run nature of the data. More significant, then, would be the question as to whether purchase percentages have remained constant over a longer period of time. In other words, is there any tendency for such weekly fluctuations as do exist to balance out in the course of a year? Table 1 shows the annual mean percentages of the various large companies for a series of years. Throughout 1931-37, Armour's annual proportion of "Big Four" hog purchases at Omaha varied between 44 and 45 per cent, Cudahy's between 30 and 31 per cent, and Swift's between 24 and 25 per cent. For the seven years, however, a slight trend in favor of Cudahy and Swift at the expense of Armour is indicated. Perhaps, then, our period is still too short to indicate any significant constancy of percentages.

Let us now turn, therefore, to a comparison of a twenty-year period. In table 1 the average annual "share" of each company at Omaha for 1931-37 is compared with that of 1913-17. The slight change over the 25 years 1913-37 is indeed striking, especially when we consider that Armour and Morris were separate companies in 1913-17 and one company in the later period. Finally, estimates are available for the proportions of the three companies in 1906-11, and the same constancy continues. Thus, in the Omaha market, "Big Four" hog purchases were divided in practically the same proportions in 1906-11 and 1937, after a span of 30 years, during which four large buyers became three. For the twelve years studied, Armour's percentage showed a range from 46.8 per cent in 1913 (including Morris) to 43.9 per cent in 1937; Cudahy's from 28.4 per cent in 1917 to 31.2 per cent in 1937; and Swift's from 23.4 per cent in 1915 to 25.2 per cent in 1933. These figures indicate that Armour was not quite able (or willing) to hold all of the Morris business at Omaha after the merger in 1923.

While there has been little change in relative positions among the three dominant packers at Omaha since the War, certain other significant changes have taken place. Dold, a large though decadent independent packer, entered the market after the War and was virtually the same size as Swift at Omaha in 1936. In this year, its weekly fluctuations (as a proportion of the total of Armour,

Cudahy, Swift and Dold) showed about the same constancy as Swift, indicating that relatively constant percentages may well be a result of large size rather than evidence of actual collusion between companies of the "Big Four."⁶ Dold's annual percentages did not, however, show the same constancy over a longer period of years, and Dold finally sold its Omaha plant to Wilson of the "Big Four."

Furthermore, in 1916 the "Big Four" purchased 81 per cent of total hog receipts⁷ at Omaha, and only about 53 per cent in 1936, largely a result of Dold's entry into the market and increased re-shipments. Wilson's recent purchase of the Dold plant raises the "Big Four" share to about 65 per cent of total receipts.

Time will not permit the detailed discussion of the other four markets. The relevant data are summarized in table 1. A few brief remarks about each must suffice. At St. Paul, Armour had no plant in 1917, but Armour and Swift hog purchases were divided very closely to a 40:60 ratio during 1931-36. (Interestingly enough, both cattle and calves were divided in virtually this identical ratio during the same period—see table 2.) For reasons unknown, fluctuations in hog percentages varied rather widely in 1937 as reflected in the change in the annual means. At Sioux City, Swift did not have a plant in 1917, Cudahy and Armour buying hogs in virtually a 50:50 ratio. If Swift's percentage in recent years is omitted for comparison, Armour and Cudahy still buy practically equal proportions.

At St. Joseph the division of hog purchases between Swift and Armour varied little from a 53:47 ratio between 1931 and 1937. The variation from normal in 1931 was due to some peculiar circumstance (perhaps rebuilding) leading Armour to take considerably less than its normal share for a number of weeks. Armour apparently lost a part of the Morris business at St. Joseph after their merger. Oklahoma City represents the most extreme case of constant percentages, Armour and Wilson dividing hog purchases about 50:50 both during the War and in recent years. During 1931-37, two-thirds of the weekly purchase percentages at Oklahoma City fell between 49 and 51 per cent ($\sigma = \pm 1.09$ of the annual mean). Cattle were divided in virtually the same proportions.

Even assuming that such constant percentages as we have presented actually mean market sharing by the dominant firms on the terminal markets both today and in 1913-17, important changes

⁶ Similarly, at Wichita, where Cudahy and Dold are the principal buyers of hogs, their weekly percentages in 1936 had a standard deviation of only ± 1.25 about their respective means.

⁷ Federal Trade Commission, *op. cit.*, Part 2, p. 53.

TABLE 2. CATTLE AND CALVES: PERCENTAGES OF TOTAL "BIG FOUR" PURCHASES TAKEN BY EACH OF THE FOUR FIRMS BUYING AT FIVE TERMINAL MARKETS, BY YEARS, 1931-37.¹

Average Annual Stand. Dev.		1931	1932	1933	1934	1935	1936	1937
1935-37	<i>Oklahoma City</i>							
± 3.46	Armour	50.4	51.2	51.0	46.4	51.0	51.2	50.2
3.46	Wilson	49.6	48.8	49.0	53.6	49.0	48.8	49.8
	<i>St. Paul²</i>					With- out United ⁵	With- out United ⁵	With- out United ⁵
2.65 ³	Swift	59.3	59.4	59.9	60.0	48.0	47.1	47.6
2.65 ³	Armour	40.6	40.6	40.1	40.0	52.0	52.9	52.4
	<i>Sioux City</i>							
2.77	Armour	39.1	37.2	37.3	36.6	34.6	35.0	32.9
3.01	Cudahy	33.3	34.3	34.5	34.3	36.6	36.1	38.5
2.67	Swift	25.6	28.5	28.2	29.1	28.8	28.9	28.6
	<i>St. Joseph</i>							
2.30	Swift	49.8	47.9	46.7	48.0	46.3	46.5	46.8
2.30	Armour	50.2	52.1	53.3	52.0	53.7	53.5	53.2
	<i>Omaha</i>							
3.02	Armour	43.5	43.1	42.8	42.8	39.0	38.9	38.5
2.89	Swift	30.2	29.5	29.9	30.8	30.2	31.6	29.2
2.59	Cudahy	26.3	27.4	27.3	26.4	30.8	29.5	32.3
Av. 2.80 ⁴								

¹ Calculated by W. H. Nicholls and I. W. Arthur from weekly reports of National Provisioner.² Cattle only. Calf purchases were reported separately at St. Paul and were also divided virtually 60:40.³ Average of 1934, 1936, and 1937.⁴ Compared with 2.99 for hogs, average 1935-37.⁵ In 1935 Armour bought out United Packing Company, the largest independent cattle slaughterer at St. Paul, and has since continued to buy partly under the "United" name. If the amount so bought is omitted from the calculation, the percentages in parentheses are comparable with previous years.

have also taken place on a national scale. First, in the five markets studied, the "Big Four" purchases relative to total hog receipts fell from 89.0 per cent in 1916 to 72.2 per cent in 1936, so that they have been sharing a declining part of each market. Furthermore, the terminal market has been of declining importance in hog marketing and the importance of direct buying of hogs has varied considerably from year to year even among the four major packers.

TABLE 3. SLAUGHTER UNDER FEDERAL INSPECTION BY THE FOUR NATIONAL PACKERS, EXPRESSED AS PERCENTAGE OF TOTAL SLAUGHTER UNDER FEDERAL INSPECTION, 1907-08, 1916-17, AND 1920-37¹

"Big Four's" Share of Federally-inspected Slaughter of				
	Hogs	Cattle	Calves	Sheep & Lambs
1907-08	53.2%	74.9%	63.0%	71.6%
1916-17	60.2	80.8	73.6	86.6
1920	51	71	67	78
1921	47	69	65	75
1922	48	71	65	75
1923	50	72	67	78
1924	48	72	67	78
1925	48	73	68	80
1926	48	71	67	83
1927	48	70	68	83
1928	48	69	71	85
1929	48	69	71	85
1930	45	68	69	83
1931	48	68	69	83
1932	48	67	68	79
1933	52	70	70	81
1934	52	68	74	80
1935	51	66	70	80
1936	54	68	72	81
1937	51	63	70	79

¹ Bjorka, Knute. *Agricultural Situation*, August, 1938, pp. 21-23.

In markets where direct receipts of hogs are of major importance today, the wide variations in on-market purchases would indicate that, if sharing is carried on, it is on the basis of slaughter or division of buying territory rather than on the basis of terminal-market purchases. Certainly direct marketing would serve to complicate any generally-understood "rules of the game" based on the simple expedient of constant on-market percentages.

These facts raise a question as to what has happened to the relative standing of the "Big Four" in the national market in the past 25 years. This material is presented in table 3, which shows the "Big Four's" share of total federally-inspected slaughter of hogs,

² See U.S.D.A. Misc. Pub. 222, *Direct marketing of hogs*, 1935.

cattle, calves, and sheep in 1916-17 and 1920-37. The "Big Four's" proportion of hog slaughter fell from 60 per cent in 1916-17 to 45 per cent in 1930.⁸ Their sharp gain to 54 per cent during 1931-36, by increasing use of concentration yards and the purchase of leading "interior" packers, is not so well known. The proportion of total federally-inspected hog slaughter by the "Big Four" was still 13 per cent lower in 1933-37 than in 1916-17 and 16 per cent lower for cattle.

TABLE 4. NATIONAL PROPORTIONS OF TOTAL "BIG FOUR" PURCHASES OF HOGS, CATTLE AND CALVES, AND SHEEP AND LAMBS TAKEN BY SWIFT, ARMOUR, WILSON AND CUDAHY, BY FIVE-YEAR PERIODS, 1913-35¹

	<i>Hogs</i>				
	1913-17	1918-22	1923-27	1928-32	1933-35
Swift	36.3	38.9	39.6	41.3	44.6
Armour-Morris	44.7	39.7	38.0	34.9	33.7
Wilson	8.4	12.0	11.3	11.4	11.6
Cudahy	10.6	9.4	11.1	10.4	10.0
	100.0	100.0	100.0	100.0	100.0
<i>Cattle and Calves</i>					
Swift	34.4	38.1	39.2	39.7	41.5
Armour-Morris	45.0	41.3	38.2	37.8	36.2
Wilson	11.0	11.2	11.6	10.7	10.7
Cudahy	9.6	9.5	11.0	11.8	11.6
	100.0	100.0	100.0	100.0	100.0
<i>Sheep and Lambs</i>					
Swift	39.2	41.1	43.0	43.7	45.1
Armour-Morris	40.2	36.9	34.0	33.2	31.9
Wilson	10.2	10.2	9.5	9.3	9.3
Cudahy	10.4	11.8	13.5	13.8	13.8
	100.0	100.0	100.0	100.0	100.0

¹ Calculated from Packer and Stockyards Administration, Petitioner's Exhibits No. 50, 52, and 53 (unpublished).

The final important question of fact relates to trends in the standings of the four dominant packers *relative to each other*. These are shown by five-year periods in table 4. Swift showed definite and marked gains in all classes of livestock 1913-35. Armour was slightly on the downgrade in all classes of livestock 1913-22, and after merging Morris, failed to hold Morris' full share even temporarily. Armour's augmented business since the merger has continued to show a definite downward trend. For the period 1913-35 Cudahy has tended to increase its share of all classes of livestock, although since 1928 it has suffered an important decline in relative

hog slaughter. Wilson's share has fluctuated somewhat but, on the whole, it gained during 1913-35 in relative hog slaughter, and declined slightly in cattle and sheep.

While the Federal Trade Commission found marked constancy of percentages in the national market as well as in individual markets during 1913-17, later national figures thus indicate that, over a period of ten to twenty years, significant shifts in the relative importance of the several major packers have taken place, especially in hog slaughter.

Although the present paper deals only with market sharing in buying, a word should be added about indications of market sharing in selling meat products. Alspaugh writes:

"The most difficult problem in connection with the distribution of products from packing plants to branches arises from the necessity of 'maintaining a position' in each market, that is, the effort of each packer to maintain a minimum percentage of the total volume of packinghouse products sold in a market. Any decline in the weekly volume of beef prompts an immediate investigation to determine whether it was due to a decrease in consumption or a larger shipment by competitors. If a competitor is shipping a larger quantity into the market, the packer will, in most cases, continue to make his regular shipments and follow an aggressive sales policy with timely price adjustments, which will insure his retaining his regular patronage. As a result the packer who has increased shipments, experiences difficulty in moving the additional quantity of beef except at greatly reduced prices, which are out of line with the prices received in other markets."⁹

Other evidence points in the same direction,¹⁰ suggesting that meat may be largely distributed on the basis of local price discrimination.¹¹

III. Theory and Analysis

Time will not permit the detailed demonstration of the theory of market-sharing here, although the writer¹² has tentatively worked out what he believes is a valid theoretical analysis of the problem. This analysis may be summarized in the following way.

First, it should be said that, when only two or a few large firms buy in a market, the supply curve of (say) hogs to any one (and hence

⁹ Alspaugh, Harold P. Marketing of meat and meat products. Ohio State Univ. Ph.D. thesis (unpublished). Columbus, 1936, pp. 142-143.

¹⁰ For example: Burns, Arthur R., *Decline of competition*, 1936, p. 165; Fed. Trade Commission, *Report on Meat Packing, Summary and Part 1*, p. 51.

¹¹ Technically, this would imply that marginal revenues, not average revenues (prices), were equalized in the various markets, after allowing for costs of transportation and distribution. Certainly any of the large packers can, by its own actions, influence the local price of meats within any but the largest cities.

¹² With the invaluable aid of Albert G. Hart and Adolf Kozlik.

all) of them depends not only upon the market supply curve but also upon the buying policies of its few rivals. Thus uncertainty as to its rivals' future policies would lead to uncertainties as to the conditions of supply which face this company. The same would be true of demand conditions on the selling side. If a certain percentage division of the buying and selling markets becomes recognized as "fair," however, the uncertainties as to one's rivals' policies largely disappear, and its own supply and demand curves tend to become merely proportional parts (say 40 per cent) of the market curves. What price and production policies might be expected under such conditions of market-sharing?

If the marginal costs of processing and distribution were identical among the few large firms for every possible total volume so shared, hog prices and pork prices (and hence the spread) would be in no wise different from that of outright collusion.¹³ Total excess profits would be shared in the same proportion as total volume, the few firms all being equally satisfied with the sharing arrangement. Although the market could be shared in given proportions at any price level from the monopoly level to that of pure competition, presumably each firm would realize that any endeavor to increase its own relative volume of purchases by price competition would only reduce its own profits, due to inevitable retaliation by its competitors.

Once we drop the highly restrictive assumption of identical marginal costs among the few firms, however, no one total volume, and hence buying or selling price, would be equally acceptable to all of them. It can be shown that, in this situation, the most efficient of the few firms would be the price leader. This firm would determine the prices which would maximize its own profits on its recognized share of the business. The less-efficient firms would be followers, taking all the hogs they wanted at the leader's price, while the more-efficient leader would then purchase the remainder of the hogs available. Under these circumstances, the less-efficient firms might be expected to take a somewhat declining share of the hogs, the leader tending to show some gain in its share.

If this analysis is valid, what are the implications when we extend it to the realities of fluctuating hog supplies? It is almost inconceivable that the marginal cost of processing of two or a few packers would be identical for a given sharing of all possible total hog receipts (as we first assumed). Yet apparently over considerable periods of time—at least in individual markets—we find actual packers' percentages very stable. This might indicate a certain

¹³ And in this special case of identical marginal costs, the same as under complete merger.

equalizing of cost between firms by non-price competition—such as advertising and other selling costs—in the short run.¹⁴

Over a longer period of time, on the other hand, there have been significant shifts in the national importance of the "Big Four" packers relative to each other. If, as is commonly asserted by those familiar with the packing industry, Swift is the most efficient, as well as the probable price leader, of the "Big Four," its gradual gains over its closest rival, Armour, since the War might corroborate our theory. Rapid gains on Swift's part would doubtless be prevented by fear of anti-trust action, even if such were possible on the basis of relative costs. Differing cost conditions among a few firms, however, by leading to different preferences as to price and volume policies, apparently favor farmer and consumer somewhat in the long run compared with identical cost conditions, under which identity of interests would be complete.¹⁵

We have so far assumed that a few firms handle the entire supply of hogs. Actually, however, there are a few dominant packing firms, undoubtedly too large to ignore their own influence on prices, and a considerable number of firms so small that they can ignore their effect on prices. Where a few firms dominate both the buying and selling markets, although they may not possess complete control of either, they may be able to establish the level of buying and selling prices—and hence the spread—in such a way as to maximize their joint profits, if the smaller firms "follow the leader." The essence of price leadership is that the dominant firms are not aggressive, that is, they take what is left over by the small firms at the price which the large firms dictate.

It is important to note that while, in their relationship to each other, a few dominant firms may have to recognize the most efficient of their number as their leader, the dominant firms—regardless of efficiency—may assume a position of leadership relative to the rest of the industry by the nature of their size alone. The dominant firms may be expected to take the initiative in making price changes as they seek to maximize their profits under varying market conditions. To each new position taken by the dominant firms the small ones will tend to adjust on the basis of competitive behavior. The largest units have the greatest interest in preventing price competition, and their greater amount of unused capacity and

¹⁴ Cf. Burns, *op. cit.*, p. 175: "The relative expenditure of different firms on non-price competition must be so adjusted that there is no net shift from one to another."

¹⁵ Only within limits, of course. Should the more-efficient firm ultimately succeed in handling the bulk of the business or even driving the others from the market, farmer and consumer could not be assured of such benefits, even though a monopolist were most efficient of all.

financial resources are such as to enable them to enforce their policy on others if necessary. Finally, the smaller firms are likely to regard the large firms as better equipped to frame a satisfactory policy for the whole industry.¹⁶ Our over-all theory, then, would lead us to expect that prices throughout the industry would tend to be established at such a level as to maximize the profits of the most efficient of the dominant firms.

While such price policies might result in excessive profits in the short run, the long-run effect might be quite different. It appears to be a common fate of price leaders to suffer a decline in their proportion of the total business. The fact that independent packers have grown rapidly since the War would indicate that prevailing spreads were sufficient for handsome profits on the part of smaller firms not burdened by considerable overcapacity. The four major packers, although their own capacity was already underutilized, have been able to prevent smaller firms from taking over an even greater share of the market by buying out some of these firms, often closing down the acquired plants, and redirecting the additional volume through their old plants. While this "rationalization" process was partly forced upon them by the shift away from the terminal markets as a source of supply, the failure to use price competition as an alternative means of gaining needed volume is liable to lead to *chronic* overcapacity, if there is a failure of price competition to act as a corrective.¹⁷ Thus, ultimately high costs may bring only a normal or even a sub-normal return on the large firms' investment and yet the farmer and consumer suffer as much as if the industry were fully monopolized.

It has not been the purpose of this section to present an analysis of the actual price and production policies of the dominant firms in the packing industry. The intent has rather been to show that both constant purchase percentages and marked shifts in the relative national positions of the leading packers, such as we noted earlier, may be fully consistent with the existence of imperfectly competitive conditions in the industry.

IV. Packers' Explanations

We have seen how constant purchase percentages have been the rule in the leading terminal markets and, for our theoretical analysis, assumed that these percentages indicated recognition by the leading packers of some "fair" division of the business. Is this assumption justified? The packers' answers to the Federal Trade

¹⁶ Burns, *op. cit.*, p. 77.

¹⁷ Within limits, it may actually be *cheaper* to expand by buying out competitors than to attempt to obtain the same volume by price competition.

Commission's charge of collusion, based on these constant percentages, are enlightening.

First, the packers stoutly maintained that constant purchase percentages resulted from the intense nature of their competition:

"Each company is constantly endeavoring to increase its percentage, but is met at every step by the competition of other packers. On the other hand, no one of them intends to see any other packer gain on it if it can help it. The result is that with everybody keeping close account of everybody else in an open market place, no single packer can increase his percentage substantially."¹⁸

We have seen that, while the market can be shared at any price level from the monopoly price to the purely competitive price, the latter would result only if each of the large buyers ignored its own influence on price. We shall soon see that they did not do this.

Secondly, they argued that "Each packer not only has a fairly definite killing capacity in his plants, but he has a certain established trade which he must take care of."¹⁹ The Federal Trade Commission rejected the capacity theory as contrary to the facts,²⁰ albeit with relatively little supporting evidence. However, since there is no necessary relationship between the killing capacities of hogs, cattle, and calves at a given plant, it is peculiar that all of these classes of livestock should be divided in almost identical proportions at St. Paul, Oklahoma City, and Ft. Worth over a long period of years. Furthermore, while established trade connections might explain constant percentages over a period of a few years, one might well raise the question as to why the important shifts in the national positions of the large packers have not been reflected in their relative shares on the individual markets studied during the same period.

Other statements by economists of Swift and Company, however, appear to be more valid. Thus, Dr. L. D. H. Weld testified that:

"If we try to exceed our customary percentages in any market, we could not get away with it, that is all. To do that, we would have to raise the bid over the market price. Morris, Armour, and Wilson would not stand for it, that is all. They would meet our prices and there would be cut-throat competition."²¹

¹⁸ R. A. Clemen, *American livestock and meat industry*, 1923, p. 766.

¹⁹ Swift and Company, *Analysis and criticism of Part II of the Federal Trade Commission report on the meat-packing industry*, 1919, pp. 37-38.

²⁰ *Op. cit.*, Part II, pp. 75-77. Cf. G. O. Virtue, *The meat packing investigation*. *Quart. Jour. Econ.*, vol. 34 (Aug. 1920), p. 671.

²¹ 66th Cong., 2nd Sess., *Hearings on H. R. 6492*, pp. 1023-26. Cf. Testimony of Edward Morris, quoted in Virtue, *loc. cit.*, p. 671.

This statement brings out remarkably clearly the fact that Swift, in spite of being the largest buyer of livestock, had to consider carefully the reactions of its largest competitors to its own price and volume policies.

The best statement of all, however, from the standpoint of brevity and honesty, is that of George E. Putnam of Swift and Company, who tried to offset the repercussions of the Trade Commission report in England. Putnam writes:

"Referring to the status of the United States companies, the [British] Sub-committee stated that even though these companies, as they allege, are quite independent of one another, 'formal independence is quite consistent with a simple tacit understanding to respect each other's position.'

"Unquestionably," Putnam continues, "*there is an element of truth in this statement*, but it might easily be misconstrued. It should be observed that the general practice among intelligent competitors of respecting one another's position need not be a matter of 'tacit understanding.' *In the case of Swift and Company it is an individual, commonsense policy, arrived at independently, not to invite retaliation and trade wars by using overaggressive tactics.* [Swift] has deliberately tried to avoid cut-throat competition wherever it was legally possible to do so.

"The same policy will always be followed by intelligent men. Purely as a matter of self-interest, no intelligent and successful business man wants to destroy his competitors. He knows that he himself may not survive the competitive struggle. Or if he should survive that struggle and become a monopolist, he knows that private monopoly, in these days of democratic government, will invite public ill-will and destructive legislation. It is clearly a matter of sound business policy to avoid cut-throat competition, but, unfortunately, there are times when the tactics of a competitor may become intolerable and in the interests of self-preservation one must have recourse to the same tactics. Thus a trade war may be provoked by an overaggressive policy on the part of one competitor."²²

To the writer's mind, this is the best statement of the philosophy of "business economics," as opposed to "social economics," that he has ever found. The interesting thing is that it was offered in defense of the policies of the dominant packers, whereas no better evidence of their "live and let live" attitude and the imperfect nature of competition in the industry could be presented, in light of more recent developments in economic theory. Our theory led us to expect that, while market-sharing might take place at any price level, rational behavior on the part of the large rivals would tend to establish prices approaching the monopoly level. Putnam's statement supports the presumption that "intelligent" competition will prevail, even if the participants are fully independent of each other.

²² George E. Putnam, *Supplying Britain's meat*. Geo. G. Harrop and Co. London, 1923, pp. 124-26.

V. Conclusions

We have presented evidence that relatively constant purchase percentages of hogs have persisted among the dominant buyers in certain important terminal markets over a long period of years. We have given some conclusions to which a theoretical analysis of market-sharing leads, and have found that the facts and some of the major arguments presented by packer representatives tend to support our theoretical results. There is little room to doubt that such constant percentages are evidence of imperfectly competitive conditions in the packing industry, presumably with ill effects on prices to farmer and consumer. But before considering the alternative remedies, much remains to be done in considering the broader picture of which "market sharing" on the terminal markets is an important but diminishing part. The results of these and other policies observed in the packing industry still need to be determined more specifically in terms of the interrelationships of investment, output, prices, profits, employment, and demand. If possible, it may be worth while to set up some sort of "ideal" set of relations of these factors in an attempt to determine how far present conditions in the industry fall short of economically desirable results.

Only after considerable further investigation will we know whether or not reform in the packing industry is necessary. It is conceivable that such monopoly elements as exist yield desirable results. A less extreme possibility is that results are undesirable but not sufficiently bad to bother about. If reform does appear necessary, such alternatives as dissolution of the large companies, government regulation or competition, producers' and consumers' cooperation, and distribution as a public utility will need to be considered. The chain store and other recent marketing developments need to be fitted carefully into the picture.

Although the packing industry is huge and its problems highly complex, it is probable that few will disagree with me that the time is ripe for a more intensive study of this perplexing problem.

STATE LAWS WHICH LIMIT COMPETITION IN AGRICULTURAL PRODUCTS

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The growth of state and local barriers to internal trade in the United States has recently been given considerable attention. No further description of these laws will be attempted in this paper.¹ Instead four aspects of the problem will be briefly examined: first, the protectionist argument for state barriers, secondly, the role of the specialist, thirdly, the kind of competitive situation out of which state barriers arise, and, finally, the chief proposals for dealing with the problem.

1. The Protectionist Arguments

Except for the fact that state and local barriers to commerce limit competition to a smaller geographical area, these barriers are essentially the same as tariffs or other national trade restrictions. Arguments in favor of national protection are, therefore, used to justify local protection. To what extent, it may be asked, do these arguments for national protection warrant the erection of state and local trade barriers? Brief mention must be made of the cruder protective arguments because they are commonly used to defend internal trade barriers. In most any state capitol when the legislature is in session one can hear arguments for sheltered state markets based upon the desire to equalize costs of production, promote a "favorable" balance of trade, raise the standard of living, or make the outsider bear the burden of the tax. Fortunately, it is unnecessary before this audience, to demonstrate the fallacies and absurdities which lie behind such arguments. But, if anyone doubts the popularity of such naive lines of reasoning, let him examine the arguments advanced for margarine taxes in Wisconsin, protection to local beer in Michigan, restriction on shipments of milk into Rhode Island, or the exclusion of out-of-state fresh fruits and vegetables from farmers' markets in Georgia.

The more generally respectable protective arguments have not been so widely used by state barrier protagonists. Possibly protection to infant industries is the purpose of such tax laws as that of Maine which gives a differential advantage to beer brewed from the products of that state or that of Arkansas which places relatively low taxes on wine sold at Arkansas wineries. But arguments

¹ Consult the bibliography on: Barriers to interstate trade, prepared by the United States Department of Commerce.

based on protection to infant industries appear to have little validity within a country such as the United States where, at least in the absence of legislative restrictions or monopolistic conditions, capital, labor and improved techniques move with remarkable freedom to the areas of greatest advantage.

Perhaps most widely accepted today of all protective arguments is that which emphasizes the need for national self-sufficiency or economic isolation. In so far as this line of reasoning has to do with national defense or avoidance of war, it obviously does not apply to state and local protective barriers; quite the opposite, in fact, for interference with interstate trade must weaken our national defense.

But for many the goal of national economic isolation is sought less for military than for economic reasons. These economic isolationists divide into two groups. First, there are those who believe that most serious economic disturbances originate abroad; eliminate these outside influences and our economy will function properly. The advocates of this program would probably discover after such isolation was achieved that business depressions do not necessarily originate abroad but are a deep-seated characteristic of our existing economic order. Before this simple lesson was learned, however, it is quite conceivable that states might take up the theory. New York State might decide that her troubles were largely due to unsettled conditions in New England and adopt state self-sufficiency as the panacea. Whether the theory of economic stability in isolation would then be extended to counties, townships, neighborhoods, and finally families the deponent hesitates to venture a prediction.

The other group favoring national economic isolation appears to do so because, holding to the necessity of national planning, they believe such planning impossible unless outside influences are eliminated or at least firmly controlled. Certainly such national planning could not tolerate internal interferences in the form of state barriers. However, it is conceivable that certain states might decide to do their own planning on the basis of an isolated economy in the belief that they were being sacrificed to the national plan. Or, in the absence of wise national planning, states may be impelled to take the initiative and put into operation what they believe to be necessary state controls until such time as the federal government may act. It is on just this basis that certain students of the dairy problem justify much of the state milk and cream legislation. They admit that such legislation often creates state barriers to the free movement of interstate trade, but they claim this is necessary

in order to deal with the problem of surplus milk and to achieve orderly marketing.

The writer has a good deal of sympathy with those who hold this point of view. The complicated nature of milk production and the high degree of monopoly in the distribution of milk and cream in many markets make the problem an extraordinarily difficult one. Yet the attempt to control marketing or production by states is fundamentally unsound for it is based on state boundary lines which seldom have any genuine economic significance. So-called "orderly" marketing within one portion of a milk shed may cause great disorder and disadvantage to another portion of the same milk shed. Certainly those who believe in the necessity of governmental control of the production or distribution of milk and cream would be on much sounder ground if they would advocate national or at the least regional rather than state planning for this industry. State lines simply are not rational economic boundaries and any attempt to make them barriers is fraught with serious danger to the national economy.

A final argument for protection has to do with the prevention of dumping. But this line of reasoning is compatible, not with general state protectionism, but rather with some kind of anti-dumping legislation. This is, of course, what we already have in our fair trade laws and in our prohibitions on unfair competition and local price cutting.

2. The Role of the Specialist

Actually the defenders of state and local tariffs often do not attempt to justify their position solely on the grounds of protective principles. Instead, they shift the argument, and local trade barriers are claimed to be necessary regulations for such purposes as revenue, protection of health, prevention of fraud and control of plant and animal pests. Sometimes these arguments are merely a subterfuge as, for example, the contention that the state of Washington fifteen cents per pound tax on margarine is imposed for revenue purposes, despite the fact that it produces practically no revenue. In other cases such as plant quarantines and milk inspection the arguments are not so easily disentangled. Obviously legislation designed to protect crops from insect pests or the public from the dangers of impure milk may be legitimate. But the great difficulty lies in the fact that public policy may be largely determined by special interests.

Although the problem is by no means confined to restrictions on the production of milk and cream, the situation there may be used

for purposes of illustration. Rigorous milk inspection laws which erect serious barriers to interstate commerce are often sponsored by local producers for obvious economic reasons. These restrictions may also be approved by public health officials who are, on the basis of their special knowledge and training, greatly impressed with the need for pure milk. This union of the producers and the specialists may result in disadvantage to the public. The public health official typically finds but little enthusiasm for health measures as such, not only on the part of the general public but even from dairymen. But if the public health measure can be so drafted as to shelter the local market, the dairymen may be brought to sponsor costly sanitary measures which under other circumstances they would bitterly oppose. Thus through a combination of interests, a health plus protection measure may be passed.

It is dangerous to permit specialists, even public health or quarantine officials, to determine public policy. As specialists they are too apt to be enthusiastic for their specialty but not overly aware of all aspects of the community interest. Biologists are likely to be eager for more quarantines and milk experts for cleaner and cleaner milk. This is all very well, but apples may be so free from imperfections and milk so sanitary that as a result of the increased cost of such model production, people having low incomes cannot afford to buy these products.

Certainly this is not meant as an argument against raising production standards in any field when every element of the situation is taken into account. But specialists no more than producers can be safely permitted to determine general public policy. Engineers and manufacturers of steel and cement can advise the public on how bridges should be built, but they cannot be trusted to determine the number which should be erected. Officials of the United States navy and leaders in the ship-building industry may offer valuable advice concerning the details of constructing battleships, but, knowing their enthusiasm for more and bigger ships, they cannot be permitted to determine the amount of public funds which shall be spent for this purpose.

3. Politico-Economic Competition

State trade barriers, in so far as they tend to restrict market areas, unquestionably give rise to what may be called imperfect competition. But it may be suggested that these state trade barriers evidence a type of competition which has not been properly defined or sufficiently recognized in the text books. It differs from the older competition in which demand, supply and price are the

important elements. This new competition (new only in that it has in recent decades become of greatly increased importance) takes place between rival economic interests. It operates by means of pressure groups and legislative lobbies and its aim is to secure legislative favors. Among the legislative favors sought may be state protection against outside competition. Perhaps this struggle by groups for economic favors should be called politico-economic competition for its means are political and its ends economic.

In our national legislature this politico-economic struggle may be correctly described as a kind of competition. Each special interest group is constantly seeking its own advantage, but in the multiplicity of groups and in the conflict of special interests there is at least some protection to the interests of the nation as a whole. No single producer group is large enough continuously to dominate the national legislature, and with the struggle on a national scale even consumer groups may make their voices heard. The complex functioning of this new competition cannot be studied here, but it may be remarked that the problems involved combine economics and politics so completely as to make largely meaningless the nineteenth century divorce of these two disciplines.

If, in a relative sense—and in that sense only—politico-economic competition on a national scale is regarded as “perfect” competition, then politico-economic competition within the states may be regarded as “imperfect.” In the field of national legislation there is a fairly good chance that the special interests of rival groups may offset one another. The farmer groups and the manufacturers’ lobbies, for example, are not always equally matched in money, wits, or votes. But they do watch each other and succeed more or less well in blocking or mitigating special interest legislation. Sometimes this competition is also fairly effective within the states. But more often it is not. The very fact that geographical specialization has gone so far in this country means that certain producers will have a tremendous influence in certain states. For example, when the dairy lobby speaks in Wisconsin the governor and the legislature of that state will give very respectful ear to their suggestions, and laws curtailing the competition of butter substitutes will be easily passed. Similarly laws favorable to the interests of cotton farmers will receive careful attention in certain southern states and southern governors and state legislatures will express horror and indignation over Wisconsin’s exclusion of certain cotton-seed products.

Surely one of the most undesirable results of this politico-economic competition as it takes place within the states is the tendency for it to result in the erection of state barriers against

interstate trade. Laws are passed to promote the interest of those industries which are already dominant in a given state at the expense, first, of industries of smaller vote-getting or vote-controlling power, and, secondly, of consumers generally. The advantages of geographical specialization are restricted or nullified and the average standard of living in the nation is lowered, although it *may* be raised for certain favored producers.

4. Plans for the Removal of State Barriers

This brief analysis of the situation out of which state trade barriers arise may aid us in answering a final question: How can these barriers be removed and free trade among the states restored? Three possible methods may be considered: retaliation, voluntary renunciation, and federal control.

The first remedy, retaliation, is a dangerous one, more likely, perhaps, to lead to the spread of the disease than its cure. State retaliatory legislation aimed at those states which set up barriers may occasionally be effective in leading to the repeal of legislation setting up such barriers, but the great danger is that, as has been typically the case in international trade, retaliation may lead to retaliation and the situation affected only for the worse. This method, therefore, offers no clear remedy.

Most popular of the proposed methods is the second, namely that states shall voluntarily repeal their restrictive acts and cooperate with the federal government to adopt measures which will lead to the maximizing of the national dividend. This method is advocated by the Council of State Governments, many state officials, and by several bureaus of the federal government. According to this line of thought the situation must be studied, the facts made known to the legislators and the general public, and the inherent disadvantage of state trade barriers to the national interest clearly demonstrated. This having been done, it is hoped that states will cooperate amicably with the federal government for the repeal or modification of their laws so that interstate commerce shall be unimpeded.

It may appear ungracious to examine critically such a desirable solution. But it is the duty of the student to study unpleasant as well as pleasant aspects of his subject and two important reasons for doubting the success of this second proposed solution call for examination.

In the first place, the underlying assumption that the public will comprehend the general reasoning which condemns local protectionism is hardly warranted on the basis of past experience. Despite able analysis by students of international trade from Adam Smith

to Jacob Viner, the general public still accepts the most specious arguments for national protection. Is there any reason to believe citizens will think more clearly on questions of local protection?

In the second place, self-interest, although admittedly not the sole motive for action, has shown a remarkable survival value. It has long been recognized as a major factor in determining how money is spent. But too little attention has been devoted to the fact that self-interest may also affect the way in which ballots are marked. Impartial analyses by governmental agencies, enlightened statements by commissioners of agriculture, excellent publicity by the Council of State Governments, all those are not only excellent but essential for any rational solution of the problem. But although twice as eloquent, I doubt their efficacy in leading the legislature of a single state to vote against what it believes to be in the local interest but in favor of the general (voteless) good.

One illustration must suffice. The governor of a Mid-Western dairy state publically condemned state trade barriers and apparently approved the statement of the Council of State Governments deploring the growth of these barriers. Yet a few months later this same governor signed a bill drastically extending his state's restrictions on out-of-state butter substitutes. This law was put through by dairy interests who believed that as producers of butter they would gain from such legislation. Careful analysis indicates that these dairymen were mistaken in their belief that such legislation could appreciably aid them. But whenever powerful economic groups within our states believe that they can gain an economic advantage over outsiders by legislative action, our states will, notwithstanding preaching and educational efforts, be inclined (at least in the present state of human nature) to retain, or even to increase, the barriers to commerce between the states.

The final alternative, greater federal control so that these barriers may be eliminated, is not politically popular and finds few advocates. Of course, if this control were brought about directly through action by the federal courts perhaps it might be acceptable. The courts do help to prevent state trade barrier legislation but, as the Constitution has been interpreted, their effectiveness is sharply limited. Thus state preference laws, state margarine sales taxes and licenses, and state liquor legislation admittedly designed for protective purposes, all have received the blessing of the federal courts.

Apparently, then, effective control is dependent upon further federal legislation. Only in this way does the writer see any clear relief from the serious burden which state barriers have already become or from the intolerable handicap which their further in-

crease may place upon our national economy. While state protectionism is yet in its infancy such national legislation may well be possible. Let it grow as rapidly for another decade as it has in the last and national legislation promoting free internal commerce among the states may be almost as difficult to secure as is now the voluntary repeal of such legislation by the states.

DETERMINING INPUT-OUTPUT RELATIONSHIPS IN MILK PRODUCTION

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In the application of economics to actual production problems, we are concerned with the question; how much of each cost factor does it pay to use? The limits depend upon how the principle of diminishing returns applies to the problem at hand, upon how soon and how seriously we encounter its effects. These effects, physical and economic, permeate all production. The direction of economic affairs, be it in manufacturing or in farming, is constantly concerned with problems in this borderline field of technology and economics.

In the technical sciences the quest for accurate measurement is an old one. In many phases of economic theory, recent years have witnessed a shift from a purely qualitative to a quantitative basis. The theory is being confronted with the facts. This often reveals that, although the theory is broadly applicable, the outcome is greatly at variance with prevailing views. The investigations in input-output relationships in milk production now in progress represent an attempt to accomplish quantitative verification of theory and to obtain data that will be useful to economists, technical specialists, and producers in determining the most economic organization and adjustment of production.

A number of attempts have been made to establish such economically important relationships as that between feed inputs and milk outputs in order to use them for economic analysis of the dairy enterprise. So far the attempts have taken the form of the well-known "statistical" studies. Usually these studies have tried to establish the relationship by statistical treatment of data obtained from farm survey records, dairy herd improvement records and supervised accounting records.¹ In the farm survey and cost

¹ As examples of this type of study, the following publications may be listed: M. J. B. Ezekiel, P. E. McNall, and F. B. Morrison, Practices responsible for variations in physical requirements and economic cost of milk production on Wisconsin dairy farms. Wis. Res. Bull. 79, August, 1927. G. A. Pond, and Mordecai Ezekiel, Factors affecting the physical and economic cost of butterfat production in Pine County, Minn., Minn. Agr. Expt. Sta. Bul. 270, Dec., 1930. S. E. Johnson, J. O. Tretsven, Mordecai Ezekiel, and O. V. Wells, Organization, feeding methods and other practices affecting returns on irrigated dairy farms in Western Montana, Mont. Agr. Expt. Sta. Bul. 264, June, 1932. A number of other studies only available as unpublished theses have been made, utilizing the same technique which was indicated in the early bulletin by H. R. Tolley, J. D. Black and M. J. B. Ezekiel, Input as related to output in farm organization and cost-of-production studies, U.S.D.A., Bul. 1277, 1924.

route records only herd averages have been available and the findings must be discounted to some extent because it was not possible to measure differences in productivity of the herds. In all three types of records, data on feed inputs are likely to be inaccurate. Nevertheless, these investigations have produced valuable information, but the inconsistencies between different studies have not been fully explained. This has been due, not to the methods employed, but to the estimating difficulties involved in obtaining the original records.

In recognition of this situation we have employed in our present investigation the experimental² method in an endeavor to obtain more reliable original data. The data are obtained by conducting experiments designed specifically with regard to the problem at hand.

It has been said, and truly so, that the determination of the basic physical relationships is not economics at all, but purely a technical problem. So are farm accounting and banking statistics. In these fields and in many others the data are not likely to be in the form needed for economic analysis unless the work is planned and executed jointly by economists and technologists. Despite the fact that a very large amount of money and effort has gone into technical research in milk production for more than half a century, practically no data are available which bear upon the problem of whether the law of diminishing returns applies to the feeding of dairy cows, and if it does, what the production function is. These are the data which will permit us to determine the economic limit to intensity of feeding under different price conditions.

One can understand why after obtaining some rough approximations at an early date these problems have been neglected. The subject of dairy feeding is a very broad one. It takes in a great deal of territory in the fields of animal physiology and nutrition, plant physiology, agronomy, the production and conservation of crops, the construction of dairy barns, and organization of the work of feeding and caring for the dairy herd.

The amount of feed needed to maintain cows has been established, and the "requirements" for milk production have been determined by numerous experiments with cows fed such quantities of balanced rations as would keep them at uniform body weight. Thus, when all feed above maintenance was converted into milk and none into increased body weight, the technically most efficient

² In reality, the experimental method is also statistical. The observations obtained from the experiment must be subjected to statistical treatment in order to extract from them the information wanted, and to ascertain how reliable and consistent this information is.

production was obtained. It has been assumed that this rate of feeding would be the most economical, as a rule, and feeding standards have been worked out on the basis of these figures. Total milk produced has been divided by total feed consumed, and average feed input per unit of milk output has been computed. In this way the requirements of the accepted feeding standards were determined.

On this basis the farmer has been advised how much to feed different cows yielding different amounts of milk and how to vary feed inputs according to weight of cow and fat content of milk in order to have his cows neither gain nor lose in weight.

It has been tacitly assumed in most technical computations that the same average relationship between milk output and feed input holds good when the feeding level is raised or lowered, or, in other words, the requirements for additional milk produced are unchanged. However, this problem of intensity of feeding is an entirely different one which requires for its solution a different set of data. The question is not one of how much to feed cows yielding different quantities of milk, but of how an individual dairy cow responds to increased and to reduced feeding. On this question there is a pronounced lack of experimental data and it is to this that our present research is directed.

The studies reported here were planned and are being conducted jointly by the Bureau of Agricultural Economics and the Bureau of Dairy Industry³ in cooperation with ten State agricultural experiment stations.⁴

At these stations we have had as many as 200 cows on experiment. The production of the cows in their previous lactation periods are known from the station's records. An estimate can therefore be made of the productivity of each animal used in the experiment, assuming that they have all had an equal chance to demonstrate their ability to produce under similar conditions of good dairy practice. All milk produced and all feeds consumed are weighed every day. The feeds are fed separately to each individual animal. Manger partitions prevent cows from stealing feed from each other. What is not eaten is weighed back. Feeds and milk are analyzed, and all experimental work is handled in accordance with the best available technique under conditions approaching good farm practice. Reports are made weekly.

³ T. E. Woodward and R. H. Smith of the Bur. Dairy Industry, U.S.D.A. have handled the technical part of the planning and supervision in cooperation with the state agricultural experiment stations.

⁴ Those in Delaware, Maryland, Michigan, Mississippi, New Jersey, New York (Geneva), Pennsylvania, Indiana (Purdue), South Dakota, and Virginia.

In one series of these experiments, the cows are fed rations which are computed in what may be called the scientific way—that is, strictly according to an accepted feeding standard. All animals are fed maintenance rations according to their weight, but production rations vary from as much as 30 per cent below to 30 per cent above the standard level. In another series the practical dairyman's feeding is approached more closely. The cows are left free to consume roughage "ad libitum." Only the grain ration is varied in proportion to milk produced so as to feed "1 to 2," "1 to 3," "1 to 4," "1 to 6" (one pound of grain for every two pounds of 4 per cent milk, etc.). Some cows are fed only roughage.

In a third series the cows are grain-fed as heavily as it is possible under practical farm conditions, taking care that roughage consumption does not sink so low as to cause mineral and vitamin deficiencies and endanger the health of the animals.

It was decided that in order to ascertain the full effects of changes in intensity of feeding, it would be necessary to have the experiments extend over at least two lactation periods, this in spite of the fact that it is much more difficult to conduct such long time experiments than it is to conduct those which run for a few months only. In the long time experiments the number of observations are cut down considerably because of loss of some cows due to sickness, accident, sterility, and various other causes.

The data needed are measurements of the physical relationships. What is the function which describes how milk output changes with varying quantities of feed? How much additional milk do we get for each additional pound of grain or its equivalent fed to dairy cows, and how does this rate of return change as we approach the limit of the dairy cow's ability to produce?

Under very good dairy herd management an average return of about 2.2 pounds of 4 per cent milk per pound of grain,⁵ or its feed value equivalent in the production ration, may reasonably be expected. In this connection it should not be overlooked that the average return on all feed including maintenance, both during lactation period and dry period is a much lower figure, about 1.0-1.2, depending upon the size and productivity of the cow. If intensity of feeding is increased, how then do the cows respond in production? Is it correct, as some dairy technologists maintain,⁶ that there is practically a constant relationship between feed used

⁵ This applies when the grain ration contains 75 per cent digestible nutrients and the substitution values of other feeds corresponds to the accepted average feed values.

⁶ See for example H. Möllgaard and Aage Lund: *Om Grundtraekkene af Malkekvaegets Ernaeringslaere*. 131. Beretning Fra Forsøgslaboratoriet, København: August Bang, 1929.

and milk produced? That is, for every additional pound of grain the additional return will be 2.2 pounds of milk until we reach the limit of the cow's capacity, this capacity in turn being dependent upon the hereditary characteristics of the animal. When this point is reached, almost nothing further is to be gained by increased feeding according to this point of view. Additional feed is simply wasted, the additional return being next to nothing. Or is it true, as other dairy technologists maintain, that there is a more gradual change in the response of dairy cows to increased feeding? From general experience in other fields, economists have been inclined to assume that the real situation corresponds to this second assumption—that there is a gradual decline in response for each additional unit of feed until a point is reached where nothing more can be gained by heavier feeding. For economic analysis it is of considerable importance whether the first or the second point of view is the correct one. If the first situation prevails in practice, it would pay best to feed cows as closely as possible at the rate which would insure maximum production and to stick to this practice, regardless of the changes in prices of milk and feeds, as long as there remained any profit in feeding for milk production.

In order to analyze the problem in these terms, we must consider a certain period of time. In milk production, as in other types of biological production, we have to deal with a continuously changing stream of inputs and outputs. The typical lactation curve rises sharply at first, reaches a maximum soon, and falls off gradually to zero in about 280 to 300 days. Feed consumption rises and falls correspondingly, although in no exact proportion. However, by cutting off suitable periods of time, for example, one lactation period or, perhaps better, one year, and totaling inputs and outputs for such a period, the analysis is greatly simplified.

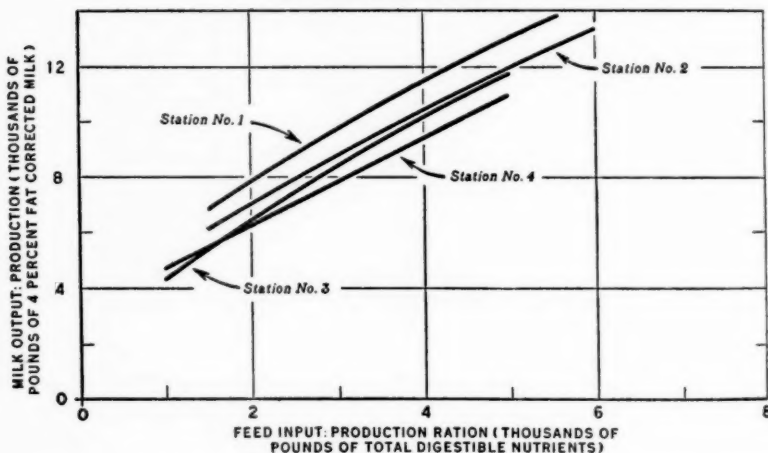
What we want to know is whether the lactation curve is a fixed function of time, or whether it can be pressed to higher levels. How much feed does it take to do so, and do additional increases create progressively smaller responses?

These experiments are not yet completed. So far only preliminary results from the first experimental year are available. The cumulative effects of scant feeding and of heavy feeding may modify them to some degree.

The sum totals of feed intake and milk output for the entire lactation period of each of the cows in the different herds constitute our observations. Only production records of animals which have suffered serious disturbances due to sickness or accident have been discarded. These figures have been used for determining the regression curve describing the average relationship between feed inputs

and milk output after taking account of the differences in productivity of the cows. In making this analysis first for each individual station herd and then for all herds combined, we have fitted to the observations a curve of the parabolic type ($y=a+bx+cx^2$).⁷ From each experiment station about twenty observations are available for the first year. In the number one series of experiments, it is not possible on the basis of these relatively few records, to tell for any individual station whether the regression line should be a curve or a straight line. We do find, however, that when we add these observations to similar data obtained at a number of other stations, there is a difference which is statistically significant between the curve and a straight line. In the number one experiments, feeding was strictly in proportion to production. (See figure 1.)

RELATION OF MILK OUTPUT TO FEED INPUT AFTER TAKING ACCOUNT
OF THE DIFFERENCE IN PRODUCTIVITY OF THE COWS
(EXPECTED YIELD)



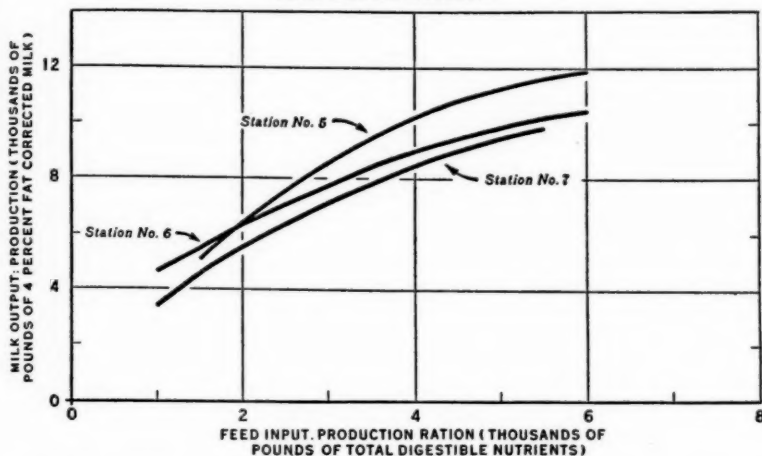
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FIG. 1

⁷ The equation actually used was: $X_1=a+b_1X_3+b_2X_2X_3+b_3X_2^2X_3$. This assumes that milk production is influenced jointly by quantity of feed consumed and the productivity of the cow in such a way that if the productivity of the cow is held constant, there is a curvilinear relationship between feed and milk production and if feed inputs are held constant, the relationship between productivity of the cow and quantity of milk produced is described by a straight line. X_1 =milk production (pounds of 4 per cent fat corrected milk). X_2 =production ration (feed above maintenance ration) in pounds of digestible nutrients. X_3 =productivity of the cow, pounds of 4 per cent fat corrected milk (production expected from past performance). a , b_1 , b_2 , and b_3 =constants.

RELATION OF MILK OUTPUT TO FEED INPUT AFTER TAKING ACCOUNT
OF THE DIFFERENCE IN PRODUCTIVITY OF THE COWS
(EXPECTED YIELD)



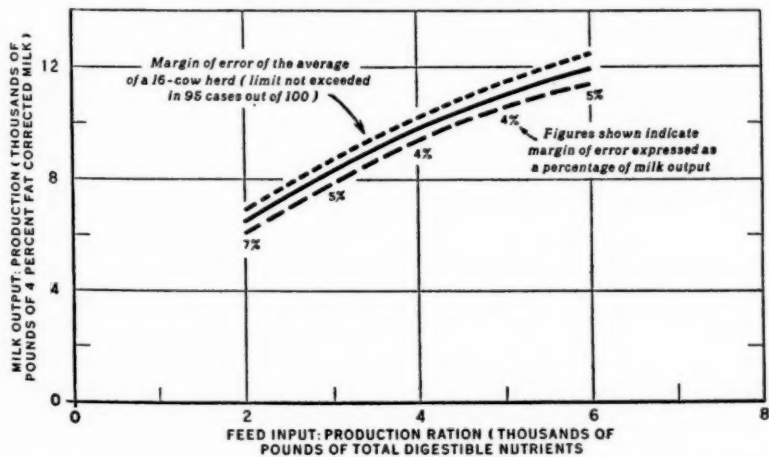
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FIG. 2

RELATION OF MILK OUTPUT TO FEED INPUT WITH MARGIN OF ERROR INDICATED
(AVERAGE RELATIONSHIP FOR COWS OF 8,000 POUNDS EXPECTED YIELD AFTER TAKING ACCOUNT
OF THE DIFFERENCES IN PRODUCTIVITY OF COWS: 7 STATIONS, 129 COWS. DIFFERENCES
BETWEEN STATIONS ELIMINATED)



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FIG. 3

In the series of number two experiments (see figure 2), where cows are fed good roughage ad libitum, there is no doubt that a curvilinear relationship prevails.

The slope of the regression curves is about the same although the level is somewhat different. Different influences are at work at some stations which give us a better milk return for feed expended than at others, but most of the differences are within the limit of experimental error and the regression curves are almost parallel. In other words, there is hardly any difference in additional returns. By making an analysis of variance we can eliminate from our results that part of the variation which is due to those factors which cause differences in the level of the regression curves. We can then consolidate and average the observations for all the stations. This gives us one regression curve for all the cows on the experiment. (See figure 3.)

We have computed our experimental error and indicated by a band of varying width around the regression curve how consistent and accurate our results are at the different levels of feeding.⁸ It will be noted that even after all our careful work we still come out with an experimental error of 5 to 6 per cent in estimating production for a sixteen-cow herd. This is not so large that it vitiates our results.

For individual cows the error is several times as large. It is a difficult matter to predict what the production performance of an individual cow will be. The variation from year to year is very great. As Professor Haecker says in one of his reports, "Indeed the ways of the cow are very strange; sometimes she does and sometimes she doesn't, and sometimes she does neither." However, what the practical farmer wants to know is how the average production of his herd will be changed if he goes in for heavier feeding. This information we can obtain from our curves with a fair degree of accuracy.

As shown by the results presented in the form of these curves, we have found that it is possible to influence milk production very considerably by feeding increasing quantities of feed. It has been thought that if cows in milk were fed in excess of the level necessary to maintain body weight, the cows would gain in weight. They would use a substantial part of the ration for this purpose instead of converting it into milk, thus making additional feeding a highly questionable practice from an economic point of view. We find that

⁸ The method used is one suggested by Frederick V. Waugh and Richard O. Been in the article: Some observations about the validity of multiple regressions. *Jour. of the Stat. Assoc. College of the City of New York*, 2 (1): 6-15, January, 1939.

this actually happens to some extent. Cows do utilize some of the additional feed for gain in body weight, but in the cows of the dairy breeds with which we are working, we find that the gain in live weight is small and the increase in milk production large. The rate of increase falls off very slowly.

If these preliminary indications are verified by the analysis of the second year's results, what then will be the practical meaning of these findings? It would seem to be a matter of great practical importance that increases in the intensity of feeding beyond the level indicated by the commonly accepted feeding standards give rise to a response which is only about one half as great as has so far been assumed in the common use of the feeding standards. It is usually assumed that one pound of grain, containing 0.75 pound digestible nutrients, or its equivalent in other feeds will return about 2.2 pounds of milk containing 4 per cent fat. Our experiments show that near the feeding-standard level one does obtain an *average* return of this magnitude for all feed consumed and all milk produced, but this rate of return cannot be applied to increases or decreases in feed intake from this level. The response to such changes is only about 1.0-1.2 pounds of 4 per cent milk for each additional pound of grain or its equivalent in other feeds.

The "requirements" represent average input per unit of output and are not applicable to results obtained by increases or decreases in feeding above and below standard feeding levels in the range in which most changes made by farmers take place. The response is here only half as great. It is greater if you increase from a lower level and less if you are already feeding very heavily, and it is better for inherently high producers than for low producers. However, the average response to additional feeding is of this much lower order.

It is also important to note that, although the principle of diminishing returns seems to hold good in dairy feeding, the rate of decrease in returns is very slow so long as we have not reached very heavy feeding. Within a considerable range near the level indicated by the feeding standard the curve of diminishing returns comes close to being a straight line.

This means that there is a very considerable amount of physical elasticity in dairy feeding. With the same dairy herds it is possible to utilize larger than normal feed crops and this can be done with small loss in efficiency. This is especially true if the additional feed is in the form of grain. Similarly in a year of shortage it is possible to reduce the ration without as serious consequences to production as have so far been assumed.

Our experience also shows that very considerably increased milk

supplies can be obtained in a relatively short time by raising the level of feeding if prices change so as to make such a development profitable. The input-output data enable us to determine more definitely how far it pays to go. These relationships were not unknown before, but their magnitude was not very well determined.

It will also be seen that the penalty for not hitting exactly the most profitable level of intensity is not so great because the rate of return falls off slowly. This also explains why, when milk prices permanently are much higher in some sections than in others while grain prices are not much different, farmers will make adjustment. On account of the basic response relationship, this adjustment must be great. Because the marginal rate of return falls off slowly, it pays to go much farther along the curve if there is a wide margin between milk and feed prices. The difference in intensity must be very considerable because the price advantage is not wiped out by diminishing returns until a considerably higher rate of feeding is reached. This actually seems to be what we find in practice. Dairymen in northern New England where milk prices are comparatively low do not feed nearly so heavily as do dairymen in Massachusetts and Connecticut where milk prices permanently are high. Similar differences are to be expected in the Middle West between areas adjacent to big cities and outlying areas where milk must be sold for dairy manufacturing purposes.

The economic analysis developed in production economics which applies to these problems is well known and only the more simple parts of it need be used if we restrict ourselves to an analysis of the economy of more or less heavy grain feeding. If we want to consider also important changes in the quantities of home-grown roughages fed, we must take account of the economic effects of changes in the use of land for the growing of these crops and we shall then have to go into an analysis of the whole farm business in order to complete the investigation. These and similar problems can be analyzed better when the full amount of data from our present investigations becomes available and the rates of return at various intensity levels continuously adhered to are more definitely established.

SUPERVISED FARMING

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Supervised farming may include joint management between landlord and tenant, counsel on general policies of a farm's operations, supervision of day to day operations, or close scrutiny of financial transactions. In addition, newer devices for supplemental management are making their appearance. This discussion is concerned with certain newer devices which might be termed "cooperative consideration of management."

A number of farms have joint management wherein the mutual interest of the landlord and tenant are considered—a great many of these are arrangements between father and son. A joint agreement of this type also enters the management field as between operators who have a combined financial interest. Supervision with continuous day to day advice given by experts in farm management, in some cases, more correctly approaches an employer-employee relationship and might be termed a form of joint compensation rather than cooperative management. Also, many principles of management come to be effectively understood by the operator through a scrutiny of the financial transactions either on an annual, semi-annual or monthly basis.

Supplemental management expresses itself not only in various forms, but with a variety of objectives in mind. These objectives color the type of supervision which is given, and influence the kind of operations which are encouraged.

Among the purposes for which supervised farming is initiated, the liquidation of indebtedness previously incurred may be listed. Another objective might be that of making improvements in order to increase the salability of the farm; still another, might be the out and out conservation of resources.

Even these few objectives conflict and supervision given for any one of them will alter the internal organization of the farm; for instance, with liquidation on indebtedness as the central objective, there may be a tendency towards cash crops and liquid operating capital. When this occurs, conservation may receive secondary consideration. On the other hand, one might cite an extreme instance where supplemental supervisory interest might lean so strongly towards an extremely long-time conservation point of view that immediate income might be disregarded and the immediate interests of the operator come into conflict with the supervising agent.

Where supervision is resorted to because of the combined interest of the mortgagee and the mortgagor, the length of the contract will influence the type of farm organization plan. A 5-year debt repayment schedule will run much more to cash crops than will a 10-year or a 20-year repayment schedule. With a 5-year contract, the supervising agent tends to influence farm operations to meet the rapid repayment schedule, and the acreages in grains and cash crops tend to be proportional to the annual repayment which must be met. This tendency is, no doubt, one of the secondary elements against which the farmer has been attempting to fortify himself when he has consistently struggled for a longer-time credit.

In recent years supplemental management is being introduced to alleviate low standards of living. Here, there is a tendency to guide the farm operator's efforts in the direction of self-sufficiency in home living with less emphasis on debt liquidation and conservation. The idea of conservation may be blended with the immediate capacity to produce a living.

All in all, it is sometimes difficult to determine which of these conflicting elements should prevail, for there is the matter of private and public interest as well as present and future interest.

Supervised farming, by and large, is dedicated to a philosophy of improving the situation of the farm operator. It does not have in mind so much the idea of supplementing a deficiency in the management capacity as it does of making available to the farm operator services and information which he does not have time to get for himself. In addition to this, supplemental management attempts to put into the hands of the farmer the necessary instruments with which to analyze his farm and its operation.

During recent years, farm plans have come to be a frequently used instrument through which management is supplemented. These farm plans set up ahead of time the objectives they undertake to meet, and evaluate the forces of debt liquidation, conservation and standards of living. Presumably, these plans are a balanced program for a given year or a period of years. The farm plan does not undertake to provide day to day supervision, but it does undertake to write out some of the operating principles with which the farmer is concerned. When a farm plan is written, the amount of food stuffs and cash required for maintenance of a family at some level of living is considered first, and then the conservation requirements of the farm, together with the debt liquidation schedule, are evaluated. There are still elements which create a tendency, however, for one of several objectives to predominate according to the first interest of the supervising institution.

One of the outstanding social inventions of 1936 was a process of evolving farm plans by writing them in groups by the farm operators themselves. Under this system, at the beginning of each year groups of from ten to twelve farmers and their wives sit down together at a table. During the two or three days that they are sitting around the table, they undertake to write out their farm plan, or, in other words, their annual operating schedule. Each farm family have their last year's operating chart with them, and the group then begins to analyze why certain things in last year's operations were satisfactory or unsatisfactory. They discuss the changes that were made, why they made them, and what the net effect has been. When this analysis has been completed, work on next year's farm plan is begun. The person who is charged with supervision does not play the part of an expert manager or super-accountant, but he does undertake to bring out the sum total of management experiences and analysis which exists among those present. He does not sit with a particular farmer, and require certain practices to be written in, in order to meet the objectives which his own interests dictate. He does, however, have a copy of the form which is being used by the farm operators in working out their annual plan, and he may have marked in the margin a series of notes which might be termed "discussion topics" or "teaching factors."

On most of the forms, one of the first items is an inventory. This includes, first of all, a statement as to the number of acres in the farm and the value of it. The group of farmers do not have the same background of experience, but they do discuss the size of the farm. Why is it that size and how does that size comply with the type of farming that is being carried on? Why do certain of their farms run 80 acres and others 640 acres? Perhaps the 640-acre farm is as well suited as to type as the 80-acre farm because it contains a different set of soil resources. On the other hand, they may find that certain of their units are too small or too large, and perhaps steps may be taken to correct this.

The next item in most inventories is the numbers of livestock. Here again, an exchange of ideas as to numbers as they relate to feed and pasture resources can be crystallized.

A third item is that of farming equipment. At this point, one of the factors which is strong in the problems of supplemental management is immediately felt. The statement is made often by groups, both in and outside of agriculture, that farm machinery has saved the farmer; the same group may say also that it has been detrimental. This argument, no doubt, arises from the fact that this is a conflict between liquidation of indebtedness supported by

real estate mortgages and indebtedness supported by chattel mortgages. However, the farmers have many good ideas among themselves concerning the amount that can be invested in machinery in order to balance the operations, and an over-investment can many times be avoided and sometime they buy machines cooperatively.

Discussion of the farm plan and what makes a satisfactory family sustaining, debt liquidating, and at the same time resource conserving unit, brings forth many applications of the first principles of effective management. What they really have done during this round table period is to supplement their management—to give cooperative attention to it.

From the standpoint of planning for operations, a great deal may be learned by "cashing in" on the experiences in a community, and discussing rotations from the standpoint of maximum cash income as well as from the standpoint of maximum conservation. It is generally found that when groups of farmers are left to their own devices in formulating their management chart, they will have a tendency to devote a large portion of their plans to conservation, realizing that the farm unit which they occupy must render them a living over a long period of years. However, they are realistic about it, in that they are the ones who actually have to meet the day to day outlay for living expenses. Thus, the group of farm operators, pooling their own experiences with all the scientific information the farm management supervisor may have to offer, at the end of the two or three days, will have filled out their own operating charts. It has not been done by someone else, and they have clarified their own minds as to the reasons they have written up particular items in a certain way.

Farm groups, who have worked in one of these management pools, have been questioned as to what they actually got out of it, to which many of them have replied that they had obtained a clearer insight into the principles of management than ever before. Farm management supervisors have been asked whether or not this was a long, drawn-out method which might be more or less of a bow to democratic process, but which might definitely lack in administrative efficiency. These farm management specialists have stated that the pooling process has accomplished more than a dozen farm visits.

Another form of cooperative supplement to management practiced centuries ago is reappearing in the modern instrument of the conservation district. The reason for saying that it is making a reappearance is that it is similar to the methods used in the old Danish community days when the heads of the households con-

ferred at intervals as to how they would manage the resources under their control. It was determined what fields would be tilled, where the grazing commons would be, and how each household would graze its animals.

In the modern management by the district idea, the operators have frequent meetings in which they make determinations of how their resources can be handled best, where they should have their spring, summer and winter range, and how heavily the area may be grazed in the light of a particular year's growing conditions. The resultant from this cooperative determination of how intensively an area may be grazed also is a determination of how much livestock each individual may put upon the reserve. Each individual's farming operations are modified and revised accordingly. Moreover, by removing some of the hazards of competing for the same resource, these farm operators have increased their stability. This is another spoke in the wheel like better information on markets or the achievement of some other efficiencies in farming operations.

These same farmers get together and discuss what constitutes a most effective organization in size and type for the community. While they do not in any way dictate to one another, they soon evolve a more efficient operating unit. Their individual management has been supplemented by the combined experiences of several operators who have undertaken to establish satisfactory relations between themselves and their resources. These farmers may pool their management experiences in handling some water development cooperatively or in bringing some erosion problem under control.

The sum total of supervised farming is to assist the farmer in more advantageously using his resources. This, no doubt, can be done in many ways. Apparently, one of the most effective methods is to combine the experiences of farm operators with those of experts or experienced supervisors and perhaps, cooperative management may be the best way to obtain the balance between the objectives and may be the best way to obtain a broad improvement in the standard of management.

UNIT REORGANIZATION PROGRAM FOR THE SOUTHERN GREAT PLAINS

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For the past seven or eight years the Southern Great Plains region has been one of the country's trouble spots. During no year since 1931 has the area as a whole been free from drought or dust storms.

The boom years of the 1920's set the stage for what the region has been going through in the 1930's. Beginning with the World War, millions of acres of grasslands were put to the plow for the production of wheat. Thousands of settlers came into the region to buy the lands at speculative prices. Doctors, lawyers, barbers, and businessmen bought parcels of land for the avowed purpose of making fortunes in wheat. Concrete grain elevators soon dotted the country; old cattle towns changed from wood to brick almost overnight; branch railroad lines crisscrossed the country. Western Kansas, eastern Colorado, and the Panhandles of Texas and Oklahoma were considered the breadbasket of the nation. But even during the boom years farmers had their ups and downs. Individual failures were many. Land shifted from one ownership to another. A large percentage of the farm population was really a floating group, operating here one year, somewhere else the next.

Ironically enough, the drought and the economic depression struck the region simultaneously. The crop failures of 1932 and 1933 exhausted the reserves of tens of thousands of farmers. The severity of the dust storms drove many of them to other sections of the United States. By 1934, the situation had reached emergency proportions over the entire region. Private credit facilities had broken down. Wind erosion was working havoc on the land. Entire communities were completely demoralized.

The first efforts toward dealing with conditions had to be in terms of emergency. Relief had to be provided on a wholesale scale. Special programs were initiated to bring wind erosion under some measure of control. The RA and the FCA undertook to fill the credit gap vacated by local banking institutions. Unhappily, however, millions of dollars were loaned for the production of wheat in the face of continued drought. Instead of helping the farmer, these loans put him more hopelessly in debt than ever. The country was wheat minded even under conditions of acute distress. But, as crop failures continued, even the optimists began to despair. Serious doubts arose in the public mind as to whether the

Southern Plains region could survive as a farming country. Abandonment of land continued. Economists and agricultural experts talked of the desert to come.

Fortunately, a more constructive view came to prevail. The efforts to control wind erosion through listing and other emergency measures met with considerable success. Farmers, representatives of the USDA and the land grant colleges began to analyze the problem carefully with a view to developing permanent solutions. In 1936, the President's Great Plains Committee also made a comprehensive study of the problems of the Plains and outlined a general plan of action. Since then the various agencies of the State and Federal Governments have planned and put into effect many programs consistent with the Great Plains' report.

Today the reconstruction of the Southern Great Plains' agriculture is definitely in progress. Important contributions are being made by the agencies of the USDA. They have shown that wind erosion can be controlled. They have demonstrated that water conservation measures when properly used can produce crops even in severe drought years. Cooperating with the colleges, they have shown what can be expected of the Plains country in terms of soil resources with relation to rainfall. All programs have been modified or changed to meet better the common objectives.

One of the most significant conclusions drawn from the experience of the emergency years is that wheat cannot be depended on as a major factor in the farmers' income in the western part of the area. The soils there are difficult to protect from wind erosion. The rainfall is light and is subject to extreme variation. Almost without exception the only farmers in this area who were able to survive the depression and drought were the relatively few operators with holdings running to three or four sections of land, most of which was used for grazing livestock, the cultivated acres of the farm supplying the supplemental feed. The experience of these farmers pointed to one thing: livestock and feed production must come more generally into the picture. A major shift in emphasis from wheat to livestock seemed called for in a sizeable block of counties in the five-state area.

The FSA, successor to the RA, began to recognize this as early as 1937. By the beginning of 1938, the so-called Unit Reorganization program of the FSA was inaugurated. The problem of developing an economic size unit is one that has been bothering farm management specialists of the country for a good many years. Even when the experts were able to agree on what might constitute an economic unit, there was always the danger of displacing certain families in order to provide an adequate income for others. The

agencies which have undertaken the Unit Reorganization program in the Southern Great Plains were not faced with this dilemma. In that region probably not more than half of the farm operators actually lived on the land, even during the era of prosperity. A large number of the farms were operated by suitcase farmers who came from distances of several hundred miles every season to plant wheat. Frequently these persons had farms of their own further east where they lived and considered the western wheat farm as a kind of speculation. Then again, in almost every county of the region, farms were owned and operated by persons who engaged in other occupations in the towns and who devoted only a part of each year to farming operations. Still other owners simply held the land for investment or speculative purposes and would shift tenants from year to year or let the land lie idle.

The depression and continued drought made the program of Unit Reorganization possible. Literally hundreds of thousands of acres of land have been abandoned. Most of it is owned by non-residents and corporations, or has returned to the States through tax delinquencies. These absentee owners are much less enthusiastic about the production of wheat than they were a few years ago. They are beginning to realize that an assured income from their land may profit them more than speculation.

The objective of the Unit Reorganization program is to assist resident farmers to lease this land in order that it can be put to the use for which it is best adapted. Surveys of the Plains region made nearly eighty years ago recommended that the region be settled in terms of operating units ranging from two to four thousand acres, most of which should be used for grazing. The Unit Reorganization program seeks to take advantage of present conditions to bring about a system of agriculture which should have been established in the first place. Had Major Powell's recommendation become a part of the national land policy in the 1870's, many of the problems which now exist never would have occurred.

In certain areas, notably eastern Colorado, where there still remains a considerable amount of grassland interspersed with cultivated land, the problem is mainly one of negotiating with land owners to obtain leases for a sufficiently long period to make the enterprise worthwhile. Often several different owners are involved in the blocking out of a single operating unit. The Federal Land Bank may own one parcel of land; a school teacher in Illinois another. These owners need to be convinced that their interests will be served by giving long-term leases which provide for a completely different use of the land. So far the program has been concentrated in those counties where it is possible to lease both aban-

doned crop land and grassland, so that the farmer can begin immediate operations on at least a small scale.

A considerably different approach is being made in those areas where most of the grassland has been destroyed. The restoring of land to grass in areas of this type is beyond the financial ability of the private owner or operator. The work is expensive and a considerable period of time is required before the land has any economic value for grazing.

Instead of assisting the farmer to lease lands from private owners in areas of this type the Government is using the submarginal land purchase program to buy the land outright for the use of resident operators. As rapidly as the Soil Conservation Service can restore the land to grass, it will be incorporated into individual operating units with the provision, of course, that the land be used for grazing purposes only. The success of this approach to the program of readjustment depends on the amount of money which may be available for public land acquisition and development in the future. It is estimated that in eastern Colorado and western Kansas alone, no less than six million acres should be acquired to achieve the agricultural stability which is desired.

After land has been added to an existing unit, either by long-term lease or by public purchase, the FSA lends the farmer money with which to purchase a foundation herd of livestock, necessary equipment, money for cash leases, and operating expenses. Funds are advanced as they are needed; for example, it is desirable that a feed reserve be built up before the foundation herd of livestock is purchased. If the farmer is burdened with debt and a substantial adjustment can be worked out, funds will be advanced to liquidate this indebtedness. Repayment schedules are set that will allow the farmer to take best advantage of market conditions. The variability of farm income is recognized. Annual home and farm budgets are made for each farm by the local Farm Security supervisor. Subsistence enterprises are developed. Diversification is encouraged with the development of as many productive enterprises on the farm as can be managed efficiently. The contributions and requirements of the entire family are taken into consideration. At least one year's feed supply is held as reserve. Trench silos, inexpensive to construct, are used.

The reorganized unit of Fred Bosley in Baca County, Colorado, is a typical example of how the Unit Reorganization idea works. In 1935 he had 320 acres. He was delinquent in his payments on his Federal Land Bank loan. It was found that nearly 2,100 acres could be added to his original unit, the new land to consist of 1,060 acres of land to be restored to grass, 90 acres for cultivated crops, and

930 acres of grassland. Negotiations with eight different landowners were necessary before the complete acreage was acquired. The land now being restored to grass had been subject for several years to serious wind erosion and was a menace to the community.

Bosley's loan from the FSA amounted to \$2,000, which was used to purchase a used tractor and equipment, a herd of 8 dual-purpose cows and 17 range cattle, a pressure cooker for use in the home, payment of \$236 delinquent taxes, \$95 cash leases, and \$331 for operating expense. His subsistence is provided by sale of produce from the farm. His cash crop is broom corn. He sells the male stock produced on his farm, retaining the females until his beef herd consists of an adequate number of breeding cows. His plan of repayment began with \$200 in May 1939 and is \$300 each spring for the next six years.

Nearly 400 reorganizations of the Bosley type have been accomplished since the program was inaugurated two years ago, the average loan being about \$2,000. The average change in acreage for these farms has been from approximately 600 acres in the old unit to 2,500 acres in the new one. Nearly a million acres have been brought into better use through this program up to the present time.

While the number of farm families affected may seem small, it should be remembered that the program is new. Time is needed to get it under way. The most serious obstacle to rapid progress is the time necessary to negotiate with landowners who must be convinced that Unit Reorganization is advantageous to their interests. The field men of the FSA and Soil Conservation Service are finding, however, that landowners are becoming interested in the possibilities of this type of program. The cooperation of the Federal Land Bank, for instance, which has had to take title on hundreds of farms, has set an excellent example to private owners of land.

The farmer in the Great Plains must have aid if he is to make the necessary readjustments. It is hoped that as time goes on the assistance provided by the FSA and the Soil Conservation Service can be extended on a much wider scale. Local banks can assist in the necessary financing, and they have already done so in some communities.

As county planning committees function more effectively, they can give their best thought and experience to the perfection of the program. In certain counties of the region, these committees have already taken the initiative in carrying out this type of adjustment. In Elbert County, Colorado, several Unit Reorganizations have been carried out where no Federal loans were necessary.

This new pattern of agriculture on the Plains is emerging slowly

but vividly. It is a flexible program. There are no set rules. If the soil is suitable for wheat production, then wheat will continue as a factor in the farm income. Provision for livestock is made on each unit, and in most places livestock production is found to be the best major enterprise of the unit. Forage crops can be converted into more cash through feeding to livestock than through sale on the open market.

The question has often been raised as to whether or not these reorganized farms are economically sound operating units. Only the future will tell, but experience would indicate that this program is the best approach to a stable agriculture which has been worked out so far for this particular region.

WHEN AND UNDER WHAT CONDITIONS SHOULD A MORTGAGE ON A FARM BE FORECLOSED?

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"When Should a Mortgage Be Foreclosed?" is, I have concluded, simply a matter of business judgment. The intelligent lender of money will foreclose a defaulted mortgage when it is in his interest to do so. Otherwise, he will select some other method of salvaging his investment.

Obviously legal considerations do not answer the question. When a man gives another a mortgage on a farm, he has given him a deed to the property. The title thus passed reverts to the borrower in case he meets the payments and other conditions of the loan contract. Physical possession and use rests with the borrower and the community typically looks upon the borrower as the owner of the property. With cases where the required payments are made and other conditions of the loan contract are met, we are not concerned. These do not give rise to foreclosure.

But as every lender of mortgage money knows, cases will arise where the conditions of the loan contract are not met. Then the lender has this question to answer: Shall I foreclose? This is a business and not a legal problem. The law gives the lender the right to proceed and obtain absolute title to the property and specifies various procedures in different jurisdictions. In most states, the law gives the mortgagor the right to redeem the property within a specified period. Foreclosure is not mandatory. The law does not say that the borrower must proceed to take over the property. But the legal right to obtain absolute title to property in cases of default of the terms of the loan is the foundation on which long-term real estate credit is based. No sensible lender will adopt a policy which will weaken his legal position and lenders will resist every effort on the part of anyone else—courts, borrowers, legislators, or sociologists—to attempt to weaken this position.

Nor are the difficulties of the borrower of primary consideration to the lender in deciding how to proceed in case of default. The wise lender will aim to keep difficulties that give rise to foreclosures to a minimum by maintaining definite standards as to the loans they make and by definite programs of regularly inspecting properties on which loans are made. He will thus try to avoid being put in a position where it is necessary to dispossess a borrower. But the effect of a foreclosure on the borrower should not be a prime factor in determining a foreclosure policy. A lending agency

has the interests of its bondholders, its stockholders, its policyholders, or its depositors to consider. It is their money that made this loan possible and he must protect their interest or be derelict in his duty.

The same is true when the Government lends. It is lending money for which the tax-paying citizens are responsible and, if such operations are to continue, public opinion will force the Government as lender to handle its operations so that it results in a minimum of losses to the tax payers.

We are not dealing here with relief. When relief is genuinely needed, public sentiment sanctions its extension. But any credit agency that attempts to operate as a relief agency and considers that it must take the borrower's part rather than the interests of those who make the funds possible will not long retain the respect of public opinion.

Now I am not unmindful of the position of the borrower. I can appreciate fully the disorganizing influence on a farm family when they lose their property through foreclosure. Furthermore, I would protect them from the dangers of loss of property and income in any way which does not violate the rights which it is legitimate and necessary for lenders to have if credits are to be continuously extended on a large scale. Specifically, I would protect borrowers through urging them to use credit intelligently and to realize fully the risks they run when they use credit extensively. Most discussions of this subject overlook the fact that borrowers run greater risks than the lender. The lender usually has security; the borrower runs the risk of losing all. This, of course, is rightly so because the borrower gets the profits if any. He occupies the same position as any other enterpriser—any other businessman. He must assume the risks inherent in his position as a profit seeker. If borrowers entered into debt with full appreciation of these risks, fewer occasions where foreclosure is needed would develop. This is not the time or place to state the principles of the wise use of credit in agriculture. My conception of these principles is briefly stated in the text "Financing Agriculture," which was prepared for use in my course in farm finance. But it is worth while to bring this point of view into the foreground. The time for the borrower to worry and for other people to worry about the borrower is before a debt is incurred; once it is incurred, then he should and must accept full responsibility. This is the reverse of the banker's wise-crack, which was made at an educational meeting for bankers: "The borrower worries until he gets the loan; then the lender worries."

Nothing is more certain than that the future is always uncer-

tain. No one knows just what hazards will be faced. A study made by Dr. Joseph Ackerman of the reasons for farm foreclosures in six counties in east south-central Illinois revealed the hazards of greatest importance in that area. Four things stand out as basic causes for foreclosure in this area in the period studied, 1917 to 1933: (1) declining prices, (2) loans on poor soils, (3) loans on rolling topography subject to erosion, and (4) high loan ratios.

Why each of these four factors contributed to foreclosures is obvious: Declining prices reduced gross and net incomes as well as values and so lowered both the capacity to pay debts and the likelihood of avoiding a foreclosure by having a third party take over the farm and mortgage. Farmers on poor soils were in a particularly vulnerable position when prices declined because the always narrow margin between income and costs on such soils tended to vanish. Rolling topography in the area studied meant that erosion was likely, as well as a poor adaptation to grain farming to which the farmers in the area were accustomed. Other studies have shown that such lands in the Corn Belt have been particularly high risk areas in the last 20 years. High loan ratios meant high debts in relation to value and higher required payments in relation to income. Margins were, of course, smaller. While the loan ratios on none of the loans studied ran above the conventional maximum of 50 per cent, a positive correlation between debt ratio and likelihood of foreclosure was revealed.

The results of this study provide an argument for the typical traditional loan ratios rather than for the more liberal ratios that area now coming into the picture.

The above study suggests ways in which borrowers can avoid losses when they go into debt to acquire land:

1. Have an accurate physical appraisal of the property which reveals not only present condition but also the likely trends in physical condition in the future.

2. Be particularly careful about going too heavily into debt to buy farms on poorer soils and in poorer regions.

3. Avoid debts on rolling lands which are likely to erode unless property is priced so low in relation to net income that it will return the principal sum to the owner before it is destroyed or that it will permit him to meet the costs of necessary protective measures.

4. Avoid debts that are too high in relation to values.

5. Be careful about going into debt too heavily in time of high prices or when values have been pushed up by wars or other events which obviously have temporary economic effect.

A little more should be said on this last point: If prices warrant

higher land values, then such higher value will develop, regardless of all the words of caution that economists and others may voice. And such higher values should develop. A successful landowner in Champaign County says that the cheapest farm he ever bought cost him \$325 an acre. He paid for it with \$1.50 corn and 15-cent hogs more easily than for some other tracts he had bought when land values and prices were both lower. But even though such values may be warranted by current conditions, it would be very unwise for the farmer of moderate means to go heavily into debt to buy land at such times.

One current trend is dangerous—namely, the making of loans which run up to 100 per cent or more of the value of the property. It is true that the lender in this venture has reduced the total annual burden to the borrower by extending the term of the loan and by reducing the interest rate. But the precedent is bad. If the principle is widely extended, it will surely lead to tremendous losses both to borrowers and lenders.

An attempt has been made to develop two ideas thus far: first, that in deciding whether to foreclose a mortgage in case of default the mortgagee should never waive one iota of his full legal rights if good judgment dictates foreclosure, and second, that he need not consider the effect on the borrower. The time to worry about that was earlier, before and when the loan was made.

But what should govern a lender in his foreclosure policy, you may ask. And my answer is that given at the beginning of this discussion: business policy.

What are the business interests of the lenders? These vary with the agency, of course. Some obvious interests are: (1) to safeguard the capital funds involved in loans, (2) to make this sum earn the maximum rate of return compatible with long-time safety, (3) to retain the good will of the land-owning members of the community so that the lender can continue to make loans in the community. A special interest, but by no means an infrequent one for some lenders in recent years is to withdraw from a particular territory or class of land with a minimum of loss. The federally-chartered lending agencies must follow policies that will retain the support of farmers that are owner-operators, but, in my opinion, this does not mean that they need to be weak-kneed and soft-hearted when it comes to the question under discussion. Perhaps my first and third items—the safeguarding of capital and the maintaining of good will—are the two interests that must be given most consideration by lenders in determining a wise business policy regarding foreclosures.

As has been noted, losses in the Middle West have risen chiefly

from too heavy loans, from falling prices, from loans on poor land, and from loans on rolling lands in areas where erosion is a problem. To avoid foreclosures, lending agencies should have loan policies that avoid making too large loans in times of high prices to the weaker classes of farms.

But many loans that get into difficulty have been made. What then? First, there should be a determination of the facts by first-hand inspection—not just a review of the record in a folder, complete as that may be. The inspectors in such cases need to know more than land or farming; they should be able to go to the roots of the matter and get the real facts. With the facts at hand, procedures can be decided on.

Let us look at some possible cases. Maybe the borrower was just trying to sell the lender the farm in the first place and is hanging on in order to squeeze out for himself as much as he can before he is forced to turn the property over to a lender. There is only one answer in such cases: foreclosure as fast as possible. Such cases exist.

Perhaps examination will show that the borrower cannot successfully operate the farm. The operator or the wife may have died and there is no will to carry on. Dr. Ackerman found a number of such cases among the group studied. The borrower may never have been a successful operator; he or his family may be too extravagant; the lender sees no way to make this family successful from a business standpoint. No adjustment in debts would correct the difficulty for long. Foreclosure or legal possession of the farm is the only business-like solution here. On a recent visit with a real estate dealer to a mid-west farm that belongs to an insurance company, the question was raised: why did this family lose this farm? His answer was, "They built too good a house and buildings for the size of the farm." Maybe they showed good judgment in doing so, but obviously the lender was correct in taking the property.

Inspection may reveal that a loan is in difficulty merely because the mortgagor was the victim of circumstances. The family is thrifty; they do a fair job of farming. Probably they are farming too intensively and are too hard on the land because of pressure of debt. Our studies show a tendency toward more extractive farming when debts are burdensome. Perhaps the loan is too heavy for the property either on account of a decline in prices or an error in judgment on the part of the appraiser. In such cases, business judgment should dictate that the lender go along with the borrower and help him work it out. This may involve extending the time of loan, cutting down temporarily on principal payments, putting the farm on a leasing basis through an agreement for entry, or some of the

other common devices used to lighten the burden and yet allow the borrower to carry on. A certain amount of tactful supervision may be in order—certainly that which tends to cause practices which preserve the land, the basic security. However, spoon-feeding of landowners through intensive supervision will never be good business practice for a lending agency. Its business is to supply needed capital at reasonable rates, not to manage farms.

Let us consider a more difficult case. Conditions are like the above. The farmer and his family can do a good job. Although they are badly discouraged, they can be pulled out of that frame of mind, but the debts are clearly excessive in view of prospective income or value. What should the lender do then? There seems to be little chance of the borrower ever paying out on the present basis. A lender can follow two policies under these conditions. If the borrower can refinance for what he considers the property to be worth, the lender can allow him to do so and take what he can get. Where a lending agency desires for business reasons to withdraw from a certain territory, it would seem to be a wise policy for it to salvage what it can, out of a situation into which it was drawn by error. The other method is to acquire such properties and then to resell them for what they are currently worth. Theoretically, and in some cases actually, a farm may be resold to the original owner. Either policy keeps the situation liquid and prevents debts from becoming frozen at too high a level. Obviously, either recovers all of the lender's original investment that conditions at time of sale of the property warrant.

These few suggestions as to procedures are not meant to be exhaustive. An attempt has been made to make two points: (1) the position of the lender should be guided by his business interest, and (2) his decision should be based on the facts revealed by competent inspection and analysis of each individual case.

One difficulty that confronts the Federal Land Banks is that they have to apply rather generalized solutions such as moratoria of principal payments, reduction of interest rates, extensions, etc., to all borrowers regardless of individual situations. Of course, they have detailed information concerning individual cases, but they are hampered in working out solutions by the necessity of applying too unified policies. This, of course, illustrates the basic weakness of the Land Banks—a weakness which may prevent their permanent success—the effort to apply a unified system over a huge country with such highly diverse conditions.

If there are any lenders on mortgage security in this group, they probably feel that this talk has suggested too loose practices. On the other hand, if there are any people here who belong to what

may be classified as the humanitarian school of credit extension, they probably think that the cold-blooded, hard-hearted banker's point of view has been presented. Being misunderstood by both sides is the penalty which one must pay for looking at different sides of a question—to see a problem whole rather than some particular angle of it.

To the lenders, let me repeat that foreclosure is merely a matter of business policy, and to the humanitarians, let me say that credit is a peculiarly difficult and inept tool to use as a means of social reform. It carries with its successful use the necessity for a cool-headed, calculated hardness which is hard to mix with reform. To grow crops, we have to keep the weeds out of the fields. To have a healthy agriculture, we have to do some weeding in order to maintain a vigorous industry. When applied intelligently, foreclosure is a weeding process that may be needed to maintain the health of the farming business and of rural life in the long run. But for business reasons, the weeding should not be too severe. Lending policies should be such as to avoid the necessity for too much weeding. Lenders on farm land security should remember that they must deal with a lot of just ordinary people—folks who make mistakes, but are trying to do a pretty good job of making a living. A foreclosure policy, even if based solely on business considerations, should recognize the facts in each case and attempt to work out solutions which give the worthy borrower a chance and yet avoid loose procedures which encourage people to take advantage of lenders. Recognition of the essential sociological character of the farming business may not be a bad business policy in the long run, provided it does not degenerate into excessive sympathy that breaks down the foundations of rural credit.

HOW CAN DELINQUENT LOANS AND FORECLOSED PROPERTIES BEST BE SERVICED AND HANDLED?

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The worth of any farm mortgage service to agriculture depends upon its success in assisting farmers to get out of debt. Servicing begins when the loan is made and continues until it is paid off. It has been estimated that the average farm loan is outstanding for twenty years.

The lender who looks alone to safety, net return, and volume, when loans are made, and solely to foreclosure and resale when break-downs come, is due for a severe jolt when he looks at his mortgage loan account five, ten, or fifteen years hence. The farm mortgage business is so closely related to the business of farming that their movements are parallel. Loans ordinarily are based on normal conditions, assuming normal earnings, with margins of safety to meet unexpected contingencies. How difficult it is to foresee trends, predict economic shifts, periods of crop failure, price disparities, low income periods, depreciation of property, deflation of land values and stagnation of demand for land, is all vividly portrayed in the past ten years.

Lenders, with 1920 loans, experienced the effect of that precipitous drop in land values in the twenties, from an index of 170 to 73. Farm income, normally around ten billion dollars, dropped to four and one-quarter billion in 1932. It has risen since but is still two to three billion dollars below normal. During this period Congress, in providing for Commissioner loans, wrote into the Act the theory of lending on normal values. Many more loans were made on this basis by the land banks, for their account and for the Commissioner, in this period than during their previous seventeen years of operations. These, relatively new borrowers, have not had the benefit of normal earnings. These facts, so well known to all of us, are mentioned only to bring out the difficulty of providing, at the time the loan is made, a margin of safety to meet contingencies that will arise in the twenty years life of the loan. Safety factors in extension of credit, and servicing plans simply cannot make up for lack of income.

The question of increasing and stabilizing farm income lies beyond our discussion. However, it has an infinitely greater influence upon assisting farmers to get out of debt than any lending or servicing plan that can be devised. Neither liberal extension of credit nor lenient forbearance once the loan is made, replace ade-

quate farm income. Lending and servicing policies can only supplement the forces that work to assist the business of farming to pay its indebtedness. Creditor and debtor alike are ultimately dependent upon stabilization of economic conditions and restoration of normal farm income. The normal productive income concept of lending is generally accepted; it follows that servicing policies must be correlated with this concept.

In fairness to both lender and borrower, certain eligibility or personal standard tests should prevail in any servicing program. All who can pay should pay. Discretion must be used in determining the ability of a borrower to pay when he is facing adverse conditions. A servicing program should not exact payment at the sacrifice of base livestock, teams, tools and equipment, or funds necessary to the successful operation of the farm. The borrower should not be expected to reduce his living expenses below the ordinary necessities of life; but he should plan his finances with care to avoid wasteful or needless expenditures.

If the borrower is unable to pay, he should be judged by a reasonable personal standard test to determine if he is worthy, and if a rearrangement of his debt structure should be offered him. To determine whether the borrower is worthy, this four point personal standard test should be applied: 1) he must be doing his honest best. Good faith is relative. The honest best of some falls short of that to be found in others. In adverse times and under heavy debt loads, inability may be falsely interpreted as lack of good faith; 2) he must be taking care of the security as best he can under the circumstances in which he finds himself; 3) he must apply proceeds of production, after meeting necessary living and operating expenses, upon his primary obligation; 4) he must be able to carry a reasonable burden of debt under normal conditions. These personal standard tests have been in operation, with some minor modification, in the land bank system since 1933, and have been generally accepted by other lenders.

Generally speaking, there are four broad classes of delinquent borrowers; 1) those who are presently unable to pay, but who have a reasonable possibility of working out of their burden of debt if given sufficient time; 2) those borrowers who need some outside assistance other than the mere extension of time or the rearrangement of payments on their loans; 3) those borrowers who cannot carry a reasonable debt burden under normal conditions; and 4) those borrowers who, because of bad faith, fail to pass the personal eligibility test.

A close individual analysis of the needs of borrowers in groups 1 and 2 will determine the type of assistance necessary; borrowers

incapacitated because of old age, chronic sickness or other permanent incapacities in group 3, and bad faith cases in group 4, seem to be beyond the reach of ordinary servicing effort. In group 1, where time only is needed, simple forbearance until a crop is made may be sufficient. When delinquency is not just temporary, an extension to a date certain, when income from crops or other sources will be available, may be the extent of assistance needed. When delinquency is caused by short periods of low income, deferments of principal payments may be sufficient assistance to tide the borrower over until he can meet regular installments out of normal income. When loan payments are heavier than the borrower can reasonably be expected to meet, a rearrangement of payments, or reamortization, over the original term of the loan, should give him reasonable prospect of meeting installments at maturity.

In distressed areas where type of farming, climatic conditions, or price disparities have contributed to long periods of low income, certain special forms of forbearance have been developed recently by the Farm Credit Administration to enable borrowers to span the subnormal income period. Borrowers in those areas have been discouraged year after year through failure of crops and because of low prices. Their debts at least under present conditions are excessive. It was evident that a different type of servicing would be necessary if worthy farm families were to be retained on their farms. They needed a breathing spell in which to replenish livestock, equipment and finances, but, above all, they needed encouragement to rebuild morale, gather strength and renew hope. If it appears that the borrower could make the payments on the first mortgage if granted a proper extension or reamortization, and could start paying something on the second mortgage at a period not greater than five years, this type of case can be served through a standstill agreement on the Commissioner second mortgage loan.

There is yet another group of worthy borrowers in such distressed areas who seem to have no present prospect of carrying their loans. However, upon return of favorable crop and price conditions, they enjoy possibilities of large income. In order to span a low income period of long duration this group needs a type of credit service fitted to extremely hazardous crop and price conditions. Crop or variable payment, and suspense payment plans, based on minimum crop or cash rentals, give the borrower assurance of possession and an opportunity to devote a portion of income above this minimum to suspended items, and so ultimately work out of his difficulty.

The second group consists of delinquent borrowers who need, in addition to more time, some outside help. Typical of this group are

those who are under-capitalized and need direction in farm management. Then too, there are those who need to adjust their farming practice to larger units either by renting or buying nearby land, or trading for other farms of proper size which they might be equipped to handle.

A farm loan system operating on a narrow spread cannot engage in the supervision of individual farms to any large extent; neither can it furnish the borrower with working capital and equipment, the use and care of which would entail more or less supervision. The FSA, organized for this type of work, is doing an excellent job by means of supervised credit. Guidance is given the worthy qualified client not only in connection with his farming operations but in his family budget as well. Loans are advanced for capital goods and production needs. A cooperative agreement has recently been worked out between the Federal land banks, the Federal Farm Mortgage Corporation and the FSA under which those worthy cases that are in need of special service in the way of supervision and additional working capital and equipment are referred to the FSA. The borrower who cannot succeed without supervision presents, to a degree, a social problem. No active lending agency can set the pace as to rates and terms, render adequate ordinary servicing to the rank and file of its borrowers, and, at the same time, give extensive, extraordinary supervisory service as to individual farm operations.

The lender, however, can do much more in this field than has been done in the past. Too many lenders, have made collections on a dollar basis. In the past, too much time has been given to finding ways and means for delaying payments. Not enough thought has been given to develop will and desire to pay and to provide ways of increasing earning power and ability to pay.

Increasing earning power and income calls for concentrated effort of many forces. In our competitive system of farming, burdens to the land are constantly increasing. The costs of production are higher, living costs, the price of things the farmer buys, the expense of controlling erosion and restoring fertility, rising costs of community improvements—all must be paid for from the land.

Credit can be geared to farmers' needs in such a way as to exert influence on the restoration and stabilization of agricultural economy. However, adjustments in terms and rates cannot be made always at the low point of the income cycle if lending agencies are to operate mutually to their own interests and to the best ultimate welfare of the farmer. If credit is to serve the best interests of all and have stabilizing influence of any considerable magnitude, borrowers must build reserves in good times to supplement

their earning power when it becomes necessary to tide over prolonged periods of low income. A general educational program in the use of credit to this end is necessary. Such a program must cover the entire field, from the time the loan is made until the farmer owns his home free of debt.

The first approach to effective educational effort in the servicing field is the development of a corps of local representatives with a farm background and a working knowledge of the essentials of farm management. They should know sound farm practices and whether borrowers are using economical and productive methods. They must be able to diagnose first symptoms of delinquency and know when to place the borrower in touch with the County Agent or the FSA.

In no case should such representatives endeavor to develop a plan of operations for the farmer; to be successful, it must be the farmer's own plan. If we are to succeed in our main objective of keeping worthy farm families on their farms, we must find a way to help them before they get into difficulty.

Handling Foreclosed Properties

The servicing and handling of farms owned is quite another problem than servicing delinquent loans, although they have some common characteristics. Both are difficult, both developed in numbers and intensity during the past ten years, and both require a considerable knowledge of farming and farm management if they are to be handled successfully. The same economic shifts brought on each problem. The failure of successful solution to the one brought on the other.

Institutional landlords did not want to be in the real estate business. Circumstance forced them in. They were not equipped, in the beginning, to handle large holdings of land. They did not know how. Some of us don't know yet, but we are learning.

Until very recently during the past decade, farms were acquired, generally speaking, faster than they could be disposed of. Holding real estate for a period longer than necessary to make a satisfactory sale is indefensible. Yet, cutting prices to make sales in distressed times, is equally indefensible if sacrificial prices further depress values in the community and affect the attitude of current borrowers toward their own loan obligations. Fortunately, with even a slight upturn in prices and yields, farms can be sold, if they are ready for sale, at prices which will not destroy values to the extent that existing loans in the area will be affected.

A servicing program should always be the handmaid of sales. Proper management and rehabilitation of farms should assist dis-

posal. It seems reasonable to assume that generally a policy of holding farms for speculation is contrary to good business practice and not in the interest of agricultural welfare; and that farms should always be on the market. It may be assumed further that large scale operation of farms by lending agencies is inimical to the objective of supplying credit at a low cost and on terms that will maintain farmers as owners.

The elements of sales policies are beyond our discussion, but these assumptions seem appropriate in fixing a starting point in a management program. Sales policy has a very definite influence upon management, in fact it is controlling. The culmination of successful management, aside from earnings and restoration of productive capacity during the period of holding, is an advantageous sale. Considering management in this light, as a corollary to sales, there are a number of factors upon which a complete, conservative and constructive servicing policy should be built.

First, some farms respond to a very thorough rehabilitation program. The value of the farm, and whether it is good or poor, controls, to a large degree, the extent of money and effort that should be expended. Farms cannot be made over. The quality and the value of the farm should be determined promptly upon acquirement.

Second, a farm is half sold when rented to a good tenant. Choice tenants themselves are prospective purchasers at some future time. The relationships with tenants and their training are as important as their selection in the first instance. Local supervision should be of a character similar to that provided for adequate loan servicing. Local supervisors must have more than a mere knowledge of renting farms and collecting rents; they must know practical farm management, understand farmers and know how to work with tenants. They must take a genuine interest in the welfare of the tenant and his family. This type of supervision must prevail if tenants are to assist in a soil and general farm improvement program, if tenant conditions are to be improved and if the better tenants are enabled ultimately to become land owners.

Even with a short period of ownership, educational work in farm management with tenants will pay big returns. Improved farming practices, and definite farm plans provide means for improving farms, increasing net returns, as well as adding to their attractiveness, their rentability and salability. The possibilities in this field need not be discussed, because the results of good farm management are evident in all communities; they are well known to all of us and are accepted without challenge.

A complete farm servicing program has the third objective of

renting all farms. Unoccupied, abandoned or unoperated farms, in addition to representing dead loss from an operating standpoint, are extremely hard to sell at anything like a fair price. The effect of abandoned farms on communities need not be explored.

Fourth, an effective farm servicing program provides for improvement and maintenance of land and buildings. How far to go with this program depends largely upon the resources of the institution, its sale policy and the quality and value of its farms. It will be quite generally agreed among institutional landlords that soil maintenance and improvement can be accomplished most economically and most satisfactorily through planned and properly supervised tenant operations. It likewise would be generally agreed that fertile, productive land, as evidenced by good growing crops, provides stronger sales stimulus, and greater assurance of successful ownership, than freshly painted buildings. Any program should maintain proper balance of improvement as between land and buildings.

Nevertheless, a rehabilitation policy is incomplete unless it provides for systematic repairs and painting and fencing, as well as major soil improvement. On good farms, ordinarily these measures are too extensive to be accomplished through a tenant. The extent of such a program should be gauged by the quality of the farm and the character of the community. Good management yields greatest returns when practiced on good farms.

Fifth, any rehabilitation program should be an honest one. The same general rehabilitation methods used by reliable automobile agencies in offering used cars for sale apply in a general way to the servicing and handling of farms. The institutional landlord has the responsibility to its purchaser and to itself of turning a farm over to the purchaser at a price and in such condition that, when properly farmed, the purchaser can make a fair living, meet his obligations of purchase and ultimately own the farm free of debt.

A good tenant family, a well trained supervisor who knows practical farm operation and can talk the farmer's language, a fair and definite lease, a sound plan of farm operations worked out cooperatively, fair rental settlements, friendly and honest relationships—these are the essential factors in good farm servicing.

The vital approach of this whole problem of servicing, whether our objective is to keep worthy borrowers on their own farms, or to improve farms and assist good tenants to become owners, is through the man himself, and his family. We must take an active, genuine interest in them. We must help the man to help himself. Our responsibility is one of building human values.

"Water will not rise higher than its source" and "Man cannot

raise himself by his bootstraps," are proverbs that are as old as the hills. In a physical sense they are as substantial as the hills. Yet man instinctively rebels in spirit against this sound physical principle. Man does raise himself by his own energies. As we look back over the countless men of achievement in every generation, we know well that the stream of human progress does rise higher than its source, and that man can raise himself by his mental bootstraps. We will achieve some measure of success in the field of service when we develop and set in motion, plans that go beyond the farm, the physical security and its operation, when we encompass human values, the man and his family, in our general program of servicing.

WHAT ELEMENTS ENTER INTO A DESIRABLE RESALE POLICY?

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Farm Credit Administration

During the last decade as a result of distressed conditions in agriculture a large number of farms have been acquired by all agencies lending on farm real estate security. Inasmuch as these agencies are in the business of making loans to farmers, and are not interested in owning and operating farms, they are confronted with the problem of disposing of the farms they have acquired. This situation brings to the fore several questions regarding practices which should be followed in reselling the farms.

As the outset the question of what constitutes a desirable policy in pricing farms for sale arises. The acquisition of farms as the result of debt delinquency on the part of the farm operator usually involves losses to the creditor as well as to the debtor. In an effort to hold losses at a minimum, lending agencies may have a tendency to price the farms high in the hope of recovering their original investment. While it is true that they have a definite responsibility to protect their investment which in the final analysis is largely an investment of policyholders, depositors, or bondholders, the placing of comparatively high prices which cover investments on the acquired farms does not solve their problem. This is true not only because buyers may not be found who will pay such prices but also because a farm sale at an agreed price does not consummate the transaction, except in those few instances where a farm is paid for completely with spot cash. Usually the sale of a farm is contingent upon another loan, so the agency must be concerned with the ability of the buyer to carry the loan after a price is established and the sale arranged. Thus it seems clear that the agency's investment in a particular farm is not the criterion upon which a resale price should be based, if a repetition of the losses incident to farm acquisition is to be avoided.

That large numbers of farms have been acquired is evidence that the original investments in many farms must have been higher than was warranted in the light of subsequent developments. An early recognition of past mistakes in estimating farm values will help bring lenders to a realization that some losses of principal must be suffered and that the establishment of resale prices for each particular farm designed solely to salvage investment in that farm is unsound. Since the value of farms is based largely upon anticipated income, a more desirable policy would be to base the resale prices

of farms upon an estimate of expected income from the farms. This discussion will be confined to a consideration of sales policy for farm properties which can be expected to provide practically all the income received by the operator and will exclude the properties whose value is based largely upon residential, mineral, or other non-agricultural factors. Properties of very low value should be priced to sell on cash terms as much as possible to avoid servicing costs which in a comparatively short time may exceed the value of the property.

A sound sales policy demands careful consideration of the normal earning capacity of farms in appraisal and pricing. In arriving at estimates of earning capacity it is necessary to determine as closely as possible the average gross sales for the farm under the type of farming to which it is best adapted and when operated by a farmer of average ability among the class of purchasers likely to be interested in the property. From gross cash income must be deducted average operating expenses including taxes to arrive at a figure of net earnings. The operator purchasing the farm must allow for his and the family's living expenses, and the remainder indicates the probable sum available for interest and reduction of principal. This latter sum must be given due consideration in arriving at a sale price for the farm.

When a resale price is established with this in mind, the seller or lending agency has a definite responsibility to estimate the productive value of the farm as accurately as possible and to choose a buyer who can operate the farm efficiently. From this point of view at least the resale policy of a lending agency is not entirely incompatible with a general policy for a sound agriculture based on the American tradition of ownership of land by farm operators. That is to say, the agencies can, while protecting their investment, play a part in returning farms to competent farm operators and thus contribute to the stability and improvement of our agriculture.

Pricing of farms is tied up with the policy of the credit agency with regard to the time of sale of real estate. The costs of holding real estate, which include expenses of supervision, are likely to exceed the income received from farm rentals. This is particularly true if some allowance for interest on the value of properties is included as a cost. In other words holding of farms may result in an increase in the investment in the property. Obviously this varies according to regions and economic conditions for agriculture but most agencies have found it desirable to sell properties as soon as possible if a price near the value can be obtained. Holding farms for speculative increases in prices is unwise and such policy is ordinarily not followed by these agencies. On the other hand

dumping of farms at low prices may have a demoralizing effect on the current market values for farm real estate, resulting in a further decline in real estate values and a reduction in equities of farmers in their farms, which is also undesirable. Consideration must be given to the effect of sales on outstanding mortgage loans. Sales at prices lower than the usual amount of loan per acre in the community may contribute to an increase in delinquency in payments on mortgage loans.

While farms must be offered at prices in line with market conditions for real estate if they are to be sold, we must not lose sight of the fact that over a period of time sale values of real estate tend to adjust themselves to farm earnings. Ordinarily it would seem desirable to sell at what we may refer to as normal prices, that is prices that reflect earnings over a period of years. If current sale values are below normal prices the creditor may gain by holding for a likely rise in values. If they are above normal prices the credit agency will usually find that farms can be moved without much difficulty but under such conditions prices must be held near normal to avoid sales at prices and terms which will result in reacquirements when the decline in value incident to a more normal condition occurs.

Without discussing alternative pricing policies that might be proposed, the remainder of this paper will point out a few of the problems which accompany the establishment of a resale policy of the type indicated.

Of the mistakes that have been made in lending on farms, over-lending on less productive farms appears to be most common. Credit agencies appear to have had fewer break-downs of sales on farms of high productivity than of low productivity indicating a tendency to overvalue farms of low productivity. At least this inference may be drawn from the experience of the Federal land banks where an attempt has been made to classify farms acquired according to their apparent productivity and general desirability from A to D; A corresponding to very good and D to poor. Although this classification is admittedly not very well defined, it serves to illustrate a greater tendency to establish higher prices than are justified by earnings on low grade farms than on the high grade farms. Only 5.2 per cent of the combined class A and B farms sold on credit terms during 1936 and 1937 had been reacquired by June 30, 1939, while of the class D farms, 6.4 per cent had been reacquired (table 1). In this discussion figures given on sales by the Federal land banks exclude farms sold for cash in full and those sold to Federal and state governments.

In many agricultural areas major adjustments are necessary to

TABLE 1. REACQUIREMENTS TO JUNE 30, 1939, OF FARMS SOLD BY THE FEDERAL LAND BANKS IN 1936 AND 1937, CLASSIFIED ACCORDING TO PRODUCTIVITY OF FARM

Class of farm	Number whole farms sold	Number reacquired	Percentage reacquired
A and B.	4,112	217	5.2
C.	10,453	549	5.3
D.	3,562	227	6.4
Unclassified.	1,679	101	6.0
Total.	19,806	1,094	5.5

place farming on a profitable basis. Such adjustments must not be overlooked by creditors who have farms for sale in these areas. As an example we might mention areas of the Great Plains where it is now apparent that a shift from general farming and cash crops to greater emphasis on livestock production with much of the land permanently in grass is necessary for profitable farming and proper utilization of the land. Such a change also requires an increase in the size of the farm units. In the sale of farms in such areas creditors can contribute to desirable adjustments by combining properties where possible and offering larger farm units or by selling to farmers already owning land in the region and enlarging their holdings.

Another element entering into a desirable resale policy relates to the type of purchaser. If we accept the proposition that ownership of land by the farm operators and the maintenance of family farms is desirable for social and economic reasons, then we may conclude that creditors will find it desirable to sell their farms to persons who will live on and operate them. Proper selection of purchasers is in final analysis the real test of a successful salesman in serving as a representative of the agency in disposing of farms. He should choose the type and size of farm best suited to the prospective purchaser's experience, financial condition, and interests. Farmers located in the same community as the farm are usually the best prospects. Often a farmer who owns a farm will wish to enlarge it or purchase a farm for use by a member of his family. Another important class of farmers are tenants who wish to own a farm and in dealing with this class of prospective purchasers the representative of the creditor has a very important function in guiding the family so they will purchase a farm in line with their financial ability, of proper size and suited to the type of farming in which they have had experience. If the credit agency has followed the practice of selecting good tenants to operate their

farms, who may be prospective buyers, they are likely to find that such tenants become their best purchasers. While the Federal land banks had reacquired by June 30, 1939, 5.5 per cent of their farms sold in 1936 and 1937 it is significant that of those sold to tenants on the bank-owned farms only 3.8 per cent had been reacquired.

Federal land banks have had relatively fewer break-downs of sales to persons living in the community where the farm is located than to persons from the outside. By far the largest share of farms are sold to local farmers and of the 1936-1937 sales only 5.2 per cent to this class of buyer had to be reacquired compared with 8.9 per cent to distant farmers. Less than 2 per cent of the farms had been sold to former owners and of these 10.5 per cent had been reacquired (table 2). However, it should be explained that former owners have usually been willing to pay more for the property than an outside purchaser would pay.

TABLE 2. REACQUIREMENTS TO JUNE 30, 1939, OF FARMS SOLD BY FEDERAL LAND BANKS IN 1936 AND 1937 CLASSIFIED ACCORDING TO TYPE OF PURCHASER

Type of purchaser	Number of whole farms sold	Number reacquired	Percentage reacquired
Former owner—	333	35	10.5
Relative of former owner.....	577	36	6.2
Local farmer.....	13,833	722	5.2
Local nonfarmer..	2,362	103	4.4
Distant farmer...	1,159	103	8.9
Distant nonfarmer	1,327	88	6.6
Unknown.....	215	7	3.3
Total.....	19,806	1,094	5.5

Other elements entering into a desirable resale policy relate to the terms of sale. Having priced the farm at values in line with normal earnings the next problem is to establish terms which the purchaser has a reasonable chance to meet, otherwise the farm is likely to be reacquired. This is a problem which can best be handled on a case basis. Obviously it presents no problem where the farm is sold for cash equal to the full purchase price but such sales are relatively few. Most farmer buyers can make only a relatively small down payment and terms must be set up that permit them to pay for the farm over a long period of years. However, we should not overlook the fact that other things being equal the larger the equity a farmer has in his property the greater is his

security of tenure. From the standpoint of the creditor this means that the larger the cash payment the less is the chance of breakdown of the sale. The farmer who can make a substantial down payment when buying a farm will have a lower fixed obligation upon which to pay interest. Furthermore he will have an equity worth protecting and will, therefore, make a greater effort to meet his contract obligations promptly. Selling farms at prices higher than justified by farm earnings and on terms calling for only a small cash payment merely means large reacquirements because when the farmer realizes he has paid too high a price and has no equity he may decide it is not worth his while to try and meet payments on his contract. On the other hand, if the price is in line with farm earnings and the farmer realizes he made a good purchase he is likely to make a determined effort to meet his obligations even though the initial payment was small. Of the farms sold by Federal land banks in 1936 and 1937, it is of interest to observe that of the farms sold at 99 per cent or less of established recovery value only 4.6 per cent had been reacquired while of farms sold at or above recovery value 6.7 per cent had been reacquired. Assuming that recovery values were reasonably accurate the experience of the land banks substantiates the rather obvious conclusion that the more favorable the price from the standpoint of the buyer the less is the chance that the property will be reacquired due to failure of the buyer to meet his obligations.

In the experience of the Federal land bank we note that fewer farms were reacquired when substantial cash payments were received at the time of sale but we should not infer from this fact that satisfactory sales cannot be made at comparatively small down payments if other conditions are favorable. Of the farms sold in 1936 and 1937 on terms of less than 5 per cent cash at the time of sale 13 per cent had been reacquired, while of the sales with 20 per cent or more of the purchase price paid in cash only 2.9 per cent were reacquired (table 3). However, the fact remains that a large share of the buyers who purchased farms at comparatively small down payments of 10 per cent or even less of the price are successfully meeting their obligations. A tenant farmer who has had considerable farming experience, interested in owning a farm, willing to work hard and who has his livestock and equipment free of debt may be a very satisfactory buyer even with a very small down payment, providing the farm is priced in line with earning capacity, and the payments spread over a sufficient period of years. Such contracts should probably be made for periods of at least 20 years.

Because of greater risk in contract sales, interest rates in sales contracts should probably be fixed at a rate slightly higher than the

current rate on farm mortgage loans in the community. This also may encourage buyers to pay on the principal as soon as possible amounts that will enable them to obtain a deed to the farm, giving a mortgage for the principal unpaid, thus taking advantage of the more favorable mortgage rate. Offers of artificially low interest rates on contracts for limited periods as an inducement to prospective buyers should be avoided. Minimum payments on principal can best be established after an analysis of the buyer's ability to pay based upon probable farm earnings and other income which he may expect.

TABLE 3. REACQUIREMENTS TO JUNE 30, 1939, OF FARMS SOLD BY FEDERAL LAND BANKS IN 1936 AND 1937, CLASSIFIED ACCORDING TO PER CENT OF PURCHASE PRICE IN CASH AT SALE

Per cent cash at sale	Number of whole farms sold	Number reacquired	Percentage reacquired
0-4.9.....	1,750	228	13.0
5-9.9.....	2,329	197	8.5
10-14.9.....	4,667	327	7.0
15-19.9.....	1,171	56	4.8
20-99.9.....	9,889	286	2.9
Total.....	19,806	1,094	5.5

Crop payment plans ordinarily have only limited application in sale of farms by credit agencies and on the whole experience with crop contracts has not been particularly favorable. However, in regions where farm income is obtained primarily from the sale of cash crops, crop contracts might be used especially in the sale of tracts to farmers who wish to enlarge their farms. Payment in terms of a share of the crop to be applied on the purchase price has the advantage from the standpoint of the buyer that his obligations are in proportion to crop yields. In the small grain territory of the plains a contract is being used calling for a share of the crop slightly greater than the usual share of the crop paid to landlords as rent. The value of this share is applied as the annual payment of interest and principal. Such contracts may prove satisfactory for creditors in the sale of farms providing the purchaser is in a favorable position and will not be handicapped by inadequate operating capital. The use of crop contracts needs further study. This type of contract calls for more intensive servicing than ordinary contracts but given adequate servicing it is likely to have wider application in the sale of farms in the future in areas where production and income from crops vary greatly from year to year.

COUNTY PLANNING PROJECT—A COOPERATIVE APPROACH TO AGRICULTURAL PLANNING

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Present planning activity of the Department of Agriculture and the Land-Grant Colleges, sometimes called the county planning project and more recently described as the county land-use planning project, is one of the latest chapters in the history of a long succession of cooperative efforts on the part of these institutions to promote a better rural life. More specifically defined, it is a cooperative effort on the part of the various agencies of the USDA, the Land-Grant Colleges, related State and local agencies, and representative farmers in each locality, State, and in the nation as a whole, to develop and currently revise agricultural plans and policies that will serve to coordinate various agricultural programs and related public activities, to increase their effectiveness in promoting long-time as well as emergency objectives, and to develop needed additional programs. The remainder of this paper will be an elaboration of this definition.

Present planning work can be understood best in the light of preceding events—particularly those of the more recent past. Experience thus far with the various agricultural programs started since 1933 has developed three important and related problems for the Department of Agriculture and the Land-Grant Colleges: (1) The problem of how to administer a national program in such a manner as to accomplish its national objectives and at the same time to fit the program to the many local variations in physical and economic conditions so that it will serve the needs of each locality most effectively; (2) the problem of how to unify or coordinate the various Federal, State and local agricultural programs so that they are essentially a single program when they reach the individual farm; and (3) the problem of clarifying the responsibilities and working relationships of the USDA and the Land-Grant Colleges.

The first of these three problems developed with the passage of the Agricultural Adjustment Act in 1933. It was then recognized that any program involving acreage quotas, established on a historical base and applied uniformly throughout the nation, might function effectively as an emergency program, but that if such a program took on aspects of permanency, differential adjustments that would fit the economic and physical conditions of each locality would have to be instituted if we were to avoid the undesirable consequences of ignoring the economic principle of comparative ad-

vantage. Stated differently, it was felt that a national program, operating as a long-time program, should not serve to prevent a shift in cotton production from the Georgia Piedmont to the plains of Texas and the irrigated areas of the Southwest, if, because of an efficiency differential due to improvements in technology and other changes, cotton production under normal conditions would tend to decline in the one area and expand in the other.

In anticipation of this danger, and in the belief that the AA Program was evolving from an emergency to a long-time program, the AAA, in cooperation with the Extension Service, started the present county planning project in the late summer and fall of 1935. This project followed closely on the heels of the regional adjustment research project, which was a cooperative effort on the part of the AAA and the Experiment Stations throughout the country to find a basis upon which a program of differential adjustments might be developed. This latter project asked the experts what adjustments, by areas, were needed in the interest of conservation, good farming, and good land use. The county planning project asked farmers throughout the country the same question.

While considering this need for differential adjustments, a problem still confronting the Department and the Colleges, the problem of coordination of the various programs was rapidly becoming a major issue. This arose from the fact that other programs, such as Submarginal Land Purchase, Crop Insurance, Commodity Loans, Marketing Agreements, Surplus Disposal, Soil Conservation, Farm Security, Farm Forestry, and others had either just been launched or were being developed. Generally, each of these programs is authorized by a separate Act of the Congress; and they all charge the Secretary of Agriculture with responsibility for efficient administration. Each of them usually deals with only one segment of the complex problem of raising and stabilizing agricultural income, achieving stability in the use of our land and water resources, and otherwise promoting a better rural life.

Because of the rapidity with which the programs were launched, and in view of the fact that the Congress itself had given only general consideration to the relationship of these programs one to another, it was inevitable that in their administration instances of ineffectiveness, conflict and duplication would arise, particularly when two or more of the programs were applied to the same farm and affected the same land. Regardless of how well conceived these programs might have been, as described by the Acts themselves and by the general administrative rules and regulations, the real test of whether they made sense in relation to one another came when they were applied in the field to particular situations. There

have been sufficient instances of a lack of harmony between programs to cause the Secretary to seek ways and means of promoting better coordination. One of the first consequences of his efforts in this direction was the establishment of the Office of Land Use Coordination.

Concurrently with the emergence of both the problem of fitting the national programs to local conditions and the problem of effecting a proper coordination of the various programs, there developed what has come to be known as the "Federal-States relations problem"—more accurately described as the problem of relations between the USDA and the Land-Grant Colleges. Federal funds for assisting the States in carrying on research and extension work are appropriated on a grant-in-aid basis, and are administered by the USDA under very general rules and regulations, thus permitting a high degree of State autonomy. This kind of Federal-State relation was the dominant type when the Department began its so-called "action" programs in 1933, programs financed not by grant-in-aid funds, but entirely by Federal funds for which the Secretary of Agriculture was made responsible.

When these programs went into operation in the States, it was logical and natural for the Department to rely upon the Cooperative Extension organization with its system of county agricultural agents as the field machinery for getting them under way. But from the time the Agricultural Adjustment Program was started as the first of the new programs, the Colleges reacted in various ways. Some said they wanted to administer all the programs. Others said they wanted nothing to do with them because theirs were purely educational and research institutions. And there were all shades of opinion between these extremes. It was evident that sooner or later this question of relationships between the Colleges and the new agencies of the Department must be clarified. To this end, it was agreed at the annual meeting of the Association of Land-Grant Colleges and Universities at Houston, Texas in the fall of 1937 that the Association and the Department would each appoint a committee to study the problem and to meet later for the purpose of working out a mutually acceptable solution.

In the spring of 1938, the Department committee came to the conclusion that this problem of Federal-State relationships and the other two problems—namely, the problem of fitting national programs to local needs and that of coordinating the national programs—were simply different aspects of the same broad problem of making the work of the Department and the Colleges more effectively fit the requirements of agriculture in a changed economic and political environment. It formulated a proposal, therefore, for deal-

ing with all three problems at once. The proposal was that the Department should retain full responsibility for administering its "action" programs, and that the Colleges and the Department proceed at once in each locality and State to cooperate in the development of land-use plans which might serve as a basis for localizing and correlating all programs.

Both committees met at Mount Weather, Virginia, on July 8, 1938, to consider this proposal, and the outcome of their discussion was a document that has come to be known as the Mount Weather Agreement. This agreement includes the major suggestions of the Department committee, and a rather detailed description of a proposed organization for planning. Among other things, the suggested organization included a State Committee in each State, consisting of a representative of each of the action agencies of the Department, the State Director of Extension as chairman of the Committee, the State Director of the Experiment Station, State representatives of any other State agencies having responsibility for land-use programs, and a number of representative farm men and women. Also, it was proposed that a committee be established in each county with the county agricultural agent as secretary, and consisting of 10 to 20 farm men and women and any county representatives of agencies included on the State Committee, as well as those of any strictly local agencies responsible for programs directly affecting those of the other agencies. It was suggested further that community committees consisting of representative farm men and women be established to assist the county committees and that this entire organization should address itself first to the task of developing a land-use plan which would spell out precisely the longer term objectives which all of the agencies operating in each area should undertake to achieve.

After agreeing that State and local planning needed to be done, that it was a joint responsibility of the Department, the Colleges, and local people, and that a logical way to begin was to develop land-use plans, the question arose as to what procedure in land-use planning was necessary if the results were to be useful to the Department as well as to State and local agencies. It was evident that ultimately the work would have to be done in such a manner that results on both sides of political boundaries, whether they be county or State boundaries, would be comparable.

As an initial step in formulating a cooperative program of work to insure such comparability of results, the Department was urged to prepare a statement embodying its conception of the type of land-use planning work which should be undertaken. After a number of conferences, the several agencies of the Department agreed

upon a proposal that has come to be known as County Land-Use Planning Work Outline No. 1. This proposal was then discussed with Land-Grant College representatives in a series of regional conferences and adopted as a general guide for the first phase of intensive planning work. It is a suggested procedure by which local planning committees can: (1) identify and analyze local land-use areas which are essentially homogeneous with respect to physical characteristics, present land use, and problems of adjustments; and (2) make recommendations for appropriate land-use adjustments in each area.

After the Department had committed itself at Mount Weather to cooperate with the Colleges in the development of land-use plans and had proposed procedures for doing so, it became evident to the Secretary that the Department itself was not organized to cooperate effectively with the proposed State and local planning organizations. There was no agency in the Department that had responsibility for general planning for the Department as a whole. The Office of Land Use Coordination was handling administrative coordination, both within the Department and inter-departmentally. In correcting this weakness, the Secretary reorganized the Department and designated the Bureau of Agricultural Economics as the general planning agency for the Department. To meet this new responsibility, the Bureau itself was reorganized to include, among other things, a Division of State and Local Planning with a representative in each State, and an Interbureau Coordinating Committee in Washington to advise with the Bureau chief. In addition, an Agricultural Program Board was established to serve as an advisory council to the Secretary. This Board consists of the heads of the action agencies, the Chief of the BAE, and the Department's directors; the Land-Use Coordinator is chairman.

Since the Mount Weather Agreement was only an agreement between two committees and did not bind either the individual States or any specific agency, and since the reorganization of the Department occurred subsequent to the Mount Weather conference, it was considered necessary to formalize the terms of these relationships by two memoranda of understanding—one between the BAE and each Land-Grant College and another between the BAE and the various action agencies of the Department. The first of these two memoranda covers the essential points of the Mount Weather Agreement, includes provisions recognizing changes made subsequently in the organization of the Department, and provides that the State representative of the BAE shall be secretary of the State Committee. It also provides that during each year for which the memorandum shall remain in effect, planning work shall be

carried forward in at least one county in the State to the point of developing an action program.

This particular provision transforms planning into planning-in-action, and refers to what has come to be known more recently as the "unified program county." It is inserted as an insurance policy against the possibility that planning may become merely pointless discussion, as well as for the purpose of allaying the often-expressed fear on the part of State people that the Department might not pay any attention to the recommendations of State and local committees.

Another significant provision of the memorandum is that there shall be established at each College a Land-Grant College-BAE Committee of three men, consisting of the project leader, who is appointed by the Director of Extension, a representative of the Agricultural Experiment Station and the State representative of the Bureau of Agricultural Economics. This three-man committee functions not only in an advisory relationship to the agencies it represents, but it is also a working committee for assisting the State Land-Use Planning Committee previously described. Under the terms of the memorandum of understanding, it has responsibility for developing details of procedure to be followed in the planning work, for encouraging the development of related research work, and for formulating the provisions of the annual project agreement covering the cooperative work of the three agencies most directly concerned with the task of guiding the planning program. The memorandum between the Bureau of Agricultural Economics and the various other agencies of the Department is a declaration of willingness to cooperate in doing the general planning work for which the Bureau is charged with primary responsibility.

So much for mechanics and the more recent history. What are our hopes, fears and expectations? The basic assumption underlying the whole effort is that for the indefinite future the Congress of the United States will continue to charge the Department of Agriculture with responsibility for administering large-scale action programs. If this assumption is valid, it is difficult to question the desirability of a procedure by which the several agencies can work out as nearly as possible an agreement as to what they are individually or collectively trying to accomplish. Fundamentally, the principal problems of our agriculture nationally are either the result of the disappearance of a part of our foreign market or of our unwillingness to sell our surpluses at prices the world is willing to pay. In the past, our nation may have helped produce this situation through its own tariff policies; but however that may be, it is plain that Amer-

ica acting alone cannot correct the world-wide ills of agriculture. This requires international cooperation which, at the moment at least, doesn't look too hopeful. Our only alternative is to do the best we can in the world as it is. Conditions are apparently going to be such that farmers will continue to demand, and get, government action that will influence their economic condition fully as much as in the immediate past. This seems to be the prospect regardless of which political party may be in control of the Federal Government.

Besides the basic assumption, there are two secondary assumptions that rest quite as much on philosophy as on logic. These are: (1) That planning should be developed through widespread farmer participation; and (2) that the planning process itself is a desirable procedure for the promotion of coordination.

The collapse of laissez faire in government policy is world-wide. The trend toward strong central governments, whether they be democratic or totalitarian, is universal and inevitable. In the light of this prospect, it behooves all democratic nations interested in preserving and perfecting the democratic process to devise ways and means by which the decisions of government can be made with the greatest possible participation by the people most directly affected. Even if the experts and administrators, acting alone, could develop plans for public agricultural programs that would be as good as those that could be developed through farmer participation, it would still be undesirable for them to do so, for such procedure would be contrary to the democratic ideal. And by no means the least of the benefits expected to flow from farmers assuming active responsibility for assisting in program planning is its possible educational effect. There is no more effective method of learning than by doing. Hence, we want widespread farmer participation for its own sake and not merely because of its contribution to technical refinement of the plan itself.

As a matter of fact, the best plans cannot be developed by technicians and administrators alone, for these tend to be specialists rather than generalists. The task of synthesis or of determining the relationships of the parts to the whole cannot be done adequately without the assistance of the layman who is confronted with the whole problem and not merely with part-problems. Both philosophy and science are involved in his decisions, and democracy itself is a philosophy as well as a form of government. Moreover, the farmer has a contribution to make to planning that lies within the fields of the various specialists, but which is the outgrowth of an experience he has had in operating farms and farm land, an experience which is both complementary and supplementary to that of the specialist.

On the other hand, to recognize both the desirability and the necessity for farmer participation is not to conclude that the administrator and technician are useless. They, too, have valuable contributions to make in program building, and the organization for planning must include them if the results of planning are not to be just as defective as they would be without the farmers' contribution. It is conceded that real progress might be made toward coordination of the various programs of the Department and the Colleges by committees that do not include farmer membership, but the inclusion of representative farmers in discussions of problems of unification will exert a constructive influence on the result of such discussion.

The two processes for achieving coordination are: (1) The process of command and obedience or the "big stick method"; and (2) discussion and mutual agreement or "compromise." In terms of procedure, therefore, the purpose of county planning is to establish an organization that is recognized as having the responsibility for studying and discussing all public agricultural programs, particularly those of the Department and the Colleges, in their relation to one another, and for working out with the administrators of such programs proposals for improving their application.

The county agent long ago learned that he could develop a better and more workable extension program when he listened also to the advice and counsel of representative farmers in his county. The scope of interest of these farmer committees was broad, and the only reason they were concerned primarily with the extension program was that extension was virtually the only public agricultural program in the county. The essential change that has occurred since 1933 is the introduction—or intrusion, if you like—of several new public action programs, some having administrative officials in the counties. Until after the Mount Weather conference, no single committee in the county had any recognized advisory relationship to all of the programs. Present planning committees are planning not merely for an extension program, but for all programs operating in the county.

From the close of the Civil War until the first World War, colleges, experiment stations and extension services were the principal "subsides" our farmers were able to get from a business-minded government. During that time, the idea prevailed that public assistance to the farmer was appropriately limited largely to education and research. But from 1920 until the great price collapse of 1929, forces were set in motion which began to change this attitude. Finally, under the pressure of extreme conditions, and again in response to the demands of farmers through their legisla-

tive representatives, the Federal Government began in 1933 to launch programs that differ from its previous activities in at least two important respects: (1) They undertake on a larger scale to do things that informed individuals, acting as individuals, cannot do, and (2) to the extent that they continue to rely upon individual action, they give relatively more attention to assisting the individual in acting, without decreasing the work of teaching him how to act. The outstanding example of a program illustrating the first of these two distinctions is the effort to establish parity income through production control, parity payments and other measures. An activity illustrating the second distinction is the granting of aids for erosion control on individual farms.

The planning the county agent and his advisory committee did in pre-1933 days will not meet present needs, simply for the reason that there is now public authority to take action along lines that were impossible in those days. Of what use was it then for a county committee to do the kind of planning that would be helpful in the rehabilitation of low-income farm families? There was neither existing nor prospective authority to do anything about it if such plans were made. Today, such authority exists through programs like those of the FSA, and action will be taken whether general planning is done or not. In fact, it is being taken. We are simply confronted with the prospect of continued authority to do many things that we couldn't do before 1933; and the longer such authority exists, the more the programs tend to become permanent rather than emergency in character and the greater will be the necessity for developing both comprehensive and detailed specifications by which both emergency and long-time programs can make the greatest possible contribution to long-time objectives as well as to those of an emergency nature. In other words, while the public is giving funds to a farmer to meet emergency requirements, it is the logical time so to administer those funds as to make the greatest possible contribution to permanent improvement, to alter the underlying conditions through soil conservation and other changes.

After more than a year of activity following the Mount Weather conference, memoranda of understanding providing for this type of planning have been negotiated by the BAE with 45 of the 48 States, and the work has been started on three levels of intensity: (1) preparatory work, (2) intensive land-use planning, and (3) the development of unified county programs. Preparatory work consists mainly of organizing committees, discussing with them the general problems, and indicating to them that as soon as technical personnel are available to assist them, they will be asked to initiate

for their county the area analysis and land classification work as a first step in the intensive planning suggested in Work Outline No. 1. The intensive work is being done, or will be undertaken this winter, in about 800 counties, each county representing a major type-of-farming area within a State. In most States, work is under way in at least one county in each State to develop a unified program for administration in 1940 or as soon thereafter as possible. This is the most intensive form of planning work. It is hoped that all counties will eventually become unified program counties. Already some of these counties have made recommendations that are not only being given serious consideration by the agencies affected, but are quite likely to be adopted. Where an adopted recommendation has an application to a wider area than the county in which it was developed, a State Committee might recommend its extension, and the national administration might possibly apply it over a still wider area than a State.

DISCUSSION BY JOHN D. BLACK

Harvard University

Dr. Allin has rendered us a very valuable service in placing on record the stages in the evolution of the present county program planning development and in stating specifically the objectives and procedures of the program as now conceived. We can turn to this paper at any time in the future for answers to numerous questions that are likely to arise concerning the program. At the same time, if faults and shortcomings develop in the program, we can also find in Dr. Allin's statement the probable reasons for them.

To illustrate possibilities along this line: I note a statement to the effect that the area classification of land is to be based on three things: Physical characteristics, present land use, and problems of adjustment. It is one of the elementary principles of logic that a good classification can have only one basis. To provide a classification of land on three bases will really take, in strict theoretical logic, as many as nine subclasses. It is true, of course, that physical characteristics and present land use are likely to be highly associated and this will often be the case with problems of adjustment, so that in any given area there may be need for only part of these subclasses. Nevertheless, much confusion is likely to arise over application of a three-fold basis of classification. My surmise, therefore, is that in the end we will come out with the classification on one basis only, and I will predict that basis to be the third, namely, similarity in needed adjustments. Stated in another way, in the final product we shall have the territory of a county laid out so that within any boundary line will be that part of it which needs the same set of adjustments.

I should also point out that Dr. Allin's presentation contains only

scanty reference to adjustments relating to rural poverty and low-income groups of the farm population, to which so much emphasis has been given in other papers before the meetings of this Association. We have even heard discussion of character-building as an essential part of a program for dealing with low-income farm families. There is no suggestion of this sort of thing in Dr. Allin's paper.

I shall now turn to a discussion of the particular questions that were cited by your chairman as to be discussed in this particular review. The first relates to the continuance of the county program planning movement and the action tied up with it in the decades to follow. One very simple approach to this problem consists of accepting the theory that after every major war there is a period of serious maladjustment in which agriculture suffers unusual hardships, but that with each passing year conditions get more nearly back to normal. With 20 years already elapsed since the end of the War, we should be well on our way to "normalcy" unless it is that a new world war of magnitude similar to the last is to be imposed on the aftermath of the last one. This general theory is not without merit. Important elements in the present situation reflect maladjustments induced by the World War as such. I shall say nothing in this connection as to the simple monetary phase of it that certain schools of thought take very seriously. I prefer to choose as illustration the behavior of wages during the whole period. It seems to have been characteristic of wage movements generally that advances have lagged until some major disturbance such as a war makes the demand for labor unusually acute, at which time wages rise to abnormally high levels, at which they tend to stick thereafter. In the particular situation, the raising of immigration barriers and the rapid development of technique in industrial production were powerful aids to the sustaining of these high levels during the 20's. I do not wish to be understood to say that wages were too high during the 20's. This may well have been the case. But I would prefer to put more emphasis on the fact that they were too low from 1900 to 1917. Regardless of what the facts may be with respect to this, no economic system can stand a sudden doubling in the wages of its industrial, trade, transportation, and other urban workers, without suffering a severe disturbance. The impact is particularly serious upon agriculture because the farm population finds itself distributing its products through channels of trade where costs and margins have been doubled, and buying its farm machinery and supplies at prices also doubled for the most part.

The agriculture of the United States did make a considerable adjustment to this wage situation during the 20's, but the process was far from completed. When the data are finally available we shall probably discover that the per-capita income of workers in agriculture had about as much buying power in 1925-29 as it had in 1910-14, but the important point is that the buying power of industrial and commercial wages and salaries, and in particular, of income from capital invested, was very much higher in the later 20's than in the prewar period. Agricultural income therefore was low *relatively*; it had failed to keep up with the procession. It is to be doubted if in the period of turmoil since 1930 the net effect has been to

bring agriculture much more nearly into line with the rest of our economic system than it was in the late 20's.

Let me mention in addition certain specific factors in the situation that make untenable any simple theory of an increasing approach to postwar adjustment. Closely related to the immediate foregoing is the circumstance that we may well have a larger element of price rigidity in our economic structure now than on any former postwar occasion. Some recent historical research on this problem raises some doubt on this point, but I prefer for the moment to accept an hypothesis of increasing price rigidity. Secondly, we seem to have reached a stage in the development of our natural resources where the stimuli toward ready private investment of capital have been greatly reduced. On this point I stand ready to accept for the most part Professor Alvin Hansen's presentation of this theory before the meeting of the Association last evening. Following the World War a large development in housing and in motor transportation and all that accompanies these went far toward getting our enterprises into high gear again. No development of similar importance has appeared in the present situation. The most promising outlook we now have is for a program of largely self-liquidating public investment of the sort that Professor Hansen has been advocating.

No doubt a contributing factor is the developing population situation, the principal elements in which are a rapid decline in the rate of growth, coupled with a rapid increase in the proportion of the population in the working-age groups.

Two other elements of major importance are that the depletion of our soils has now reached the point where very many of our farmers must spend more on fertilizer and on efforts to save their soil from erosion than formerly, so that their net return is considerably reduced.

Finally, we shall never in the future be as callous about the poverty of our rural populations as we have been in the past. All future programs must include a strong effort to improve the well-being of the submerged one-third of our agricultural families.

My answer to the first question, then, is that although there are some elements in the situation that point toward some sort of "normalcy," once we recover from this prolonged depression of the 30's, any contribution which these may make to the situation are much outweighed by other factors, so that we can continue to expect a need for vigorous programs of agricultural adjustment such as the unified county programs envisage.

The next questions suggested by your chairman relate to the probable adequacy and effectiveness of the county program planning development. It is clear that this undertaking is still in its developmental stages. The 40-odd counties for which unified programs may be developed in the first year must be interpreted as proving and testing ground. We still have before us such an important task as fitting together the contributions of the experts and the farmers and other local agencies. It is the habit of many people connected with this movement in the federal government and out in the states to assume that a group of leading farmers gotten together in any county can be trusted to know what is best for the county. My guess

is that these groups will make poor suggestions in very many cases. Oftentimes the successful experience of a few farmers in the county with some new system of land use or cultural practice should become the basis of the recommendations rather than the prevailing experience. I can well remember a time when a committee of farmers made up in almost any county in southern Wisconsin would have gone on record relative to the use of alfalfa in a manner which would not have accorded at all with what the experts were recommending and with what has now come to be accepted as common practice. In New England the tendency of the farmer committees will be to extrapolate the long history of a declining agriculture in most of their counties, when, as a matter of fact, such data as are available seem to indicate a definite reversal of the trend in many of the counties.

A further problem to be solved is that of the reconciliation of local with larger interests. We may be sure that the fluid milk producers in New Jersey have ideas about New Jersey markets for New Jersey dairymen that are not in accord with those of producers across the river in Pennsylvania; that the Wisconsin and Illinois milk producers will not see eye to eye with respect to dairy production and related and use programs that tie in with the Chicago fluid milk market. In a larger pattern there will be differences in the points of view of the Midwestern and Eastern dairymen, of the Corn Belt and the Range beef cattle producers, and the like.

I am particularly glad to note Dr. Allin's describing the unified county programs as action programs. I have no doubt that there are many people in the Extension work in this country—perhaps Mr. Kepner later in the program—who will still insist that they are still programs of education. If these are going to be action programs, the various action agencies—the AAA, the SCS, the FSA, the Forest Service, etc.—must set about implementing them; likewise must the state action agencies. Most important of all, the state extension services and the county agents must proceed to bring the recommendations to pass in so far as their methods can contribute to them. I doubt, however, whether the present set-up in any state or county is such that the unified programs can be converted into action with sufficient vigor to insure their continued vitality. The county agent already has more duties than he can perform. Probably in most counties an addition to the present set-up will be needed in the form of some action officer to concentrate his efforts on the implementation of the recommendations. He should of course, work under the direction of the local county agent.

In addition, the major action programs will need to make some important changes in their methods and procedures if these unified county programs are really going to result in action. I shall illustrate this by stating in particular that the Soil Conservation Service will need to change its procedures with its districts; likewise that the AAA will need to modify its ideas about how to get forest conservation under way on farm woodlands.

Finally, for the real achievement of the adjustments that will be recommended in the unified county programs, we shall need some additional

federal and state legislation, or at least enlarged appropriations. To be specific, the FSA will need much larger appropriations than it now has if it is going to deal with the disadvantaged farm families along the lines suggested in Secretary Wilson's paper at the noon meeting. The present program after all has concerned itself for the most part with families needing only to make some adjustment in their farming and spending programs in order to get on their feet and repay a loan. It is true that grants in aid are being made for temporary periods, but in most cases these look forward to a time when the family can start with a real rehabilitation loan. A broad program of dealing with disadvantaged families has to provide in addition for a few hundred thousand families that need some "character-building" of the sort that Secretary Wilson talked about, that involves more than giving them a fresh start. This kind of a program will call for a much larger appropriation than has thus far been made available.

If we are going to have real forest conservation, we shall need to have legislation that goes much further than anything now provided. A committee within the USDA is busily engaged on developing a well-rounded program to deal with farm woodlands, small holdings needing to be consolidated for successful operation, and with larger tracts held under single private ownership. The recommendations about forest lands that will come out of the county programs in the Northeast, for example, will have several major proposals in them that cannot be implemented with any present legislation.

We shall also have to have some new developments in our program in agricultural credit. Production credit will need to be expanded to include woodland improvement, drainage improvement, erosion control improvement, and the like, which are not now possible under any present type of loans. Many of the FSA clients need small real estate loans in order to buy additional land required for an adequate income.

County program plans will have to provide for marketing as well as land use and production. The FSA is undertaking something of this sort in a small way, but with entirely inadequate resources and only half an understanding of the difficulties involved. The legislative developments included under marketing orders and distribution of surplus farm products represent an important beginning from another approach, but all of these put together are far from enough.

Finally, we shall need some new legislation with respect to the provision of health and adequate school facilities in our submerged areas if we are going to implement the county programs that will be developed.

DISCUSSION BY P. V. KEPNER

Extension Service, United States Department of Agriculture

The particular phase of Dr. Allin's paper which this discussion involves centers around the question: "Does the county planning process provide a proper procedure for participation by the farmer, the administrator, and the expert?"

The paper very adequately indicates the genesis of the county land use

planning activity, very properly points out that the planning process itself is evolutionary, is never finished, and stresses the fact that it is a cooperative endeavor from which all interested agencies and individuals should derive definite benefit as well as make equally definite contributions to a common objective.

However, the definition of the effort and the emphasis placed on coordination of agricultural programs as the major objective of this work tends to leave the impression with the casual reader that the primary function of planning committees is to make critical appraisals of specific programs and recommend adjustments in such programs as the basis for inducing coordination. This impression is further enhanced by repeated reference to programs of the Department and the State Colleges. Although the paper does attempt to modify this emphasis at occasional points, such modifications are either by implication or have received such brief mention that they are overshadowed by the program coordination emphasis.

More emphasis might well have been placed upon that which to this reviewer is the primary justification for such work, namely, the development of an objective and thoroughgoing appraisal of the major problems facing agriculture in each respective area and an examination of the ways in which those problems best may be met. Joint products of such an endeavor are education—education not only for the farmer, but also for the expert and the administrator—the type of education which leads directly to intelligent and effectively directed action—and coordination of programs. And by programs is meant the programs of all having to do with agriculture all the way from the program of the individual farmer for the operation of his farm to the program of a public or quasi-public agency attempting to render assistance to farmers in general.

This is not an implication that public program coordination is not important. Very definitely it is. However, if coordination (which to many frequently means merely modification of existing programs) is held up to farm people as the primary justification for this work it might lead to a maximization of personal biases and grievances rather than the development of objective problem analyses. Such analyses in themselves, if properly developed and recognized, should naturally lead to a reappraisal of all programs by those responsible, with appropriate adjustments a logical consequence.

For the sake of brevity attention is not directed to the several instances in Dr. Allin's paper where this element of program coordination is emphasized as the primary consideration in planning work. A particular reference is, however, worth noting. It is a statement of purpose as follows: "In terms of procedure, therefore, the purpose of county planning is to establish an organization that is recognized as having the responsibility for studying and discussing all public agricultural programs, particularly those of the Department and the Colleges, in their relation to one another, and for working out with the administrators of such programs proposals for improving their application."

This concept, as worded, it seems to me, is strongly tinged with the type of thinking which is characteristic of the administrator or the expert.

From the standpoint of the farmer, who, as has been ably pointed out by Dr. Allin, "is confronted with the whole problem and not merely with part problems," the logical approach is from the basis of problems facing him and his community and the adjustments that need to be made. The consideration of adjustments needed in specific programs, or coordination of different programs, "in their relation to one another," becomes to him relatively a matter of secondary although important consideration. Particular programs to him are a means to an end and not an end unto themselves.

Dr. Allin has outlined the place in the planning process of the farmer, the administrator, and the expert—if it is agreed that the term "programs" implies first of all a program for the agriculture of the area, and secondly the specific programs involving definite types of organized action deemed essential to promote necessary adjustments. Pooled knowledge and experience are essential for the greatest progress. The County Land Use Planning activity provides an effective mechanism for the promotion of this process of pooling knowledge and experience.

Field operations to date with planning work as it is now formally functioning, although in general highly gratifying, have not progressed sufficiently for one to develop indisputable conclusions as to the effectiveness and accomplishments of this work, or the soundness of the procedure insofar as the contributions and attainments of each of the three groups are concerned. In attempting to draw any conclusions the fact must be kept in mind constantly that planning committees at no level can encompass the universe of important problems facing them in a short period of time. There are many problems other than the purely physical problems of production which need serious objective consideration, and they have their roots deeply grounded in social customs, political traditions, and complex economic relationships. Progress at the best will be and probably should be made slowly if it is to be sound.

Farm people in most instances are entering into the planning work with a wholesome appreciation of its possibilities and limitations. Their initial approach varies all the way from an entirely objective problem analysis approach with agency coordination one of the natural outcomes, to the other extreme of going through certain prescribed preliminary steps for the sole purpose of bringing about agency coordination. In some instances the desire for an agency program adjustment may dominate their thinking. The approach taken in the beginning depends very largely upon the presentation made by the State leaders involved.

However, it is observable that whatever the initial approach, there is a tendency for the farm people to direct their thinking rather quickly to the problems of the area, their causes and their possible solutions. Many times solutions suggested do not involve action by any existing formal agency but may involve entirely local action. It isn't a case of whether they want their breakfast eggs fried "up or over," it is a question of whether they need eggs for breakfast or something else.

The process being employed is encouraging farm people more systematically to appraise numerous physical, economic, and social problems of sig-

nificance to them in such a way as to develop a broader perspective and a better appreciation of interrelationships involved. This is most essential to the soundest development of an agricultural program. And this broadened perspective is not restricted to farm people alone—both the administrators and the experts who are working closely with local committees are being influenced in a like manner.

Since in the development of committees on the local, county, and State levels, emphasis is placed upon obtaining farm people who represent different geographical areas and types of farming rather than because of particular group affiliations, a wholesome and reasonably unbiased type of approach is being obtained rather generally. Participation is neither motivated by hope for immediate personal financial remuneration, nor because of the hope that a particular type of palliative may be popularized. Instead these committeemen in most instances are approaching this activity in an analytical frame of mind and with the conviction that out of their fund of practical experience and intimate acquaintance with local conditions they can make valuable contributions to a worthwhile cause.

Even though some local people never have been reluctant to assume responsibility for sponsoring adjustments involving group action, this planning procedure, uniting the interests of the Department, the State Colleges, farm people and others in a common cause, is doing much to bolster further a sense of responsibility on the part of local farm people and has encouraged them to believe more real accomplishments can be attained through this organized procedure. Evidence available to date in numerous counties indicates that this belief is not ill founded. If time permitted many different types of action already instigated by the work of local planning committees could be cited. In some instances such action is purely of a local nature and involves no governmental agency participation; in others action is being taken by local governmental bodies; in still others the recommendations of local planning committees are being adopted, in whole, or in part, by State or Federal agencies operating within the local area. The procedure being used is producing results and farm people are making a major contribution to this effort.

If "proper procedure" in the general question, "Does the county planning process provide a proper procedure for participation by the farmer, the administrator, and the expert?" is interpreted to refer to the particular techniques being employed in the land use planning work, experience to date would indicate that this procedure is proving very satisfactory. If farmer participation is to be obtained and their interest maintained in planning work, the approach used must be specific and realistic, must permit of the measurement of definite progress, and must produce results—must show evidence of usability and actual use. Although, in a large percentage of the counties this work has not progressed sufficiently for these committees to have developed definite recommendations for action on all phases of a program for the area involved, which recommendations they feel are sufficiently mature for immediate adoption, the other prerequisites of a successful procedure are being met by the current planning work. The final productiveness of such work will rest to a large extent upon

the degree to which recommendations are given serious consideration by local people and agencies involved, whether those agencies be local, non-Departmental or Departmental agencies. However, definite action must result if this work is to survive.

What about the administrators? Unquestionably this group has both a major responsibility and a golden opportunity in this endeavor. A responsibility to the participating farm people for providing advice and counsel regarding the relationship of the programs which they are administering to the local problems of agriculture and the feasibility or lack of feasibility of specifically meeting some of the problems raised through such programs. An opportunity to obtain the advice and counsel of local people in an objective appraisal of the effectiveness and suitability of the specific programs involved as related to local conditions, and in regard to adjustments needed in such programs.

Reports from the field and firsthand observation indicate that in practically all instances the administrative personnel cooperating in this work is cognizant of the responsibilities and opportunities involved and is taking an active part in these deliberations. By the very nature of the work, the need for taking adequate time to launch planning activities, to get farm people informed and committees organized to operate, administrative participation in most instances has been more indirect than direct in the early stages. Administrators have, however, willingly participated in the development of methods of operation, assisted in the selection of counties to carry on intensive and "unified" planning, have helped in determining methods for obtaining the cooperation of local farm people and in determining the most appropriate method of designating farmer membership of committees, and in many other ways have speeded the progress of this activity.

Since in the counties doing intensive planning work there is considerable "spade" work of an analytical nature carried on in local communities, it is not always possible for local administrators of so-called "action" programs to be present and assist with such preliminary deliberations. At the county level, however, active participation of local administrators usually has been all that could be expected.

Again numerous instances could be cited of specific contributions to planning work by administrative personnel. Contributions in the form of providing basic information and materials available only in the offices of such administrators through the operations of their programs over a period of time, in the form of special analyses of such basic information for committee use, and in the form of consultation as to the administrative problems involved in attempting a particular type of adjustment in a given administrative program. In several instances special assistance has been assigned from regional and State offices of different agencies to help those county committees which have reached the most advanced stages in the planning work. Such action is not merely an expression of altruistic motives, but is a recognition of the fact that the agency itself has much to gain from this work through direct assistance in adjusting its own operations to more satisfactorily meet specific problems of the local farm people.

What is the place of the expert?

It is assumed that reference in the leading question is directed to that group of technicians in the State Colleges and in the ranks of the various Federal, State, and local agencies who are not directly responsible for the guidance of planning work.

In the early stages of this work such specialists have made very valuable contributions. Typical of such contributions is the preparation of necessary background information adapted to farmer interpretations such as generalized soils maps (based on detailed soils maps where such are available or reconnaissance surveys in the absence of detailed maps), economic data of many types, significant climatological data, livestock feeding requirements, results of special research studies, and similar materials. Also, in many States, representative experts have served on special committees delegated the responsibility of developing plans for field work, determining the amount and nature of background material to be prepared, the order of priority for the assembly and use of such material, and in several instances individuals from this general group have assumed responsibility for carrying part of the field load of working with local committees on both the community and county levels. Such assistance is indispensable.

However, the very nature of this endeavor, its intensity, the necessity for developing a degree of acquaintanceship adequate to make for free exchange of opinions among the individuals involved, has limited the direct participation of many experts in field work in these earlier stages. For those specialists or experts not as yet actively engaged in direct contact work with local committees a major field of cooperation and contribution lies ahead when the first general decisions of local and county committees as to adjustments needing to be made and ways in which they may be made come in for more detailed consideration and refinement. It is at this stage that the expert will have to be relied upon heavily (and is in those instances where the work is sufficiently developed) to help weigh the soundness of recommendations made in the light of scientifically determined fact. And here, too, sight should not be lost of the opportunity for the experts to check their scientific knowledge with the problems of its practical application as experienced by the farmer.

DISCUSSION BY D. W. WATKINS

South Carolina Extension Service

Briefly stated the contention is valid to the extent that this planning procedure enables us to have better farm programs based on better informed public opinion. Better programs will be more flexible in rule and law and more promptly adapted to the planning done by farmers. It seems to be a trite statement in this country to say that government itself is intended to be an expression of common action of the people through their representatives. The programs of the USDA are a part of that common action aimed at the present and future general welfare. Of course some features of these programs represent the personal ideas of individuals who bear responsibility from time to time. However under a democratic pro-

cedure public opinion tends to submerge personal ideas so that the essentials of farm programs come more and more to represent the thinking and feeling of farm people.

Farm people however do not at once arrive at a final conclusion as to their wishes and feelings and the means of materializing them. Neither is it always possible for Congress to promptly and correctly crystallize in the form of law such wishes and feelings. In fact, Congress has usually avoided detail by merely skeletonizing farm legislation and furnishing the raw materials in the form of funds with which to complete the body of service. The rest is left to the Secretary of Agriculture and, under authority, the employees in the Department proceed to clothe the skeleton provided by Congress with such form and contour as will meet the *needs* of farm people without departing from the shape presupposed by the kind of skeleton which Congress has provided. There may at first be overdevelopment of certain members of the body in comparison with others or too much obesity for greatest efficiency. The democratic procedure of letting farm people do the planning with the help of the agencies concerned is calculated to perfect this body of service from year to year. If this is an apt illustration all will perhaps agree that nothing is to be gained by arguments between or among the different members of the body as to which is the most essential.

The tobacco program of 1938 proved not to be acceptable to growers, and they voted unfavorably in the referendum on marketing quotas in the fall of that year; but when Congress changed the law and farmers had another year of experience, quotas were voted for 1940. In this case the needs of farmers were reflected in Congressional action. In some respects programs can be perfected by refinement of regulation without action by Congress. For example, many farmers who now feel it necessary, in the light of reduced acreage of cash crops to produce the subsistence requirements of their farms, regard the AAA rule, allowing only 10 acres of wheat per farm without penalty, irrespective of the number of families on the farm, as such a case.

It is to be hoped that the county planning procedure will further any proper change in legislation or refinement in regulation that practical farmers see is needed, with the least loss of time or waste of effort consistent with the law and general welfare. If all are thinking therefore of this planning procedure as a means of expressing the needs of farm people in the Department programs thereby rectifying the programs currently and causing them to conform to those needs, then there is less room left for argument against the validity of the programs themselves as well as of the planning procedure as a coordinating force. It is taken for granted that the responsibility of the Department includes harmonizing regional interests on a fair and equitable basis. Furthermore the Department must exert such controls as will keep the spirit of service uppermost and any disposition toward agency aggrandizement in the background.

Thus, planning by farm people with the help, but without the dictation of the expert, technician, or agent is the rudder that properly guides legislation, and regulation into safe channels. The results of such planning should be seriously considered by both the Department and by Congress as the best direction that can be given to agricultural programs.

In many instances the needs can be met through greater flexibility. Farming itself is so complex that no program can fit its needs, even from the national viewpoint, unless that program has such flexibility as to make it practicable for all states and localities. Programs must eventually come around to fit the needs, therefore flexibility should be great enough to prevent the waste involved in having to vote out programs in order to arrive at the necessary changes. The several programs of the Department set up under separate Acts of Congress could not be coordinated even through the county planning procedure if each program is inflexible. It is not impossible to put present programs together under a single Act of Congress, and thus coordinate them at the fountainhead as they must be on the individual farm. In the absence of such unifying legislation much has been done by the Department itself under the broad powers given by Congress to the Secretary of Agriculture.

It is not enough for the programs to be in harmony among themselves. Besides internal harmony and flexibility the programs must meet the changing major needs of farm people. To do that the planning procedure has been devised with the view of magnifying and making more articulate the voice of farm people. When this machinery for making the wishes of farm people understood has been perfected the coordination of programs becomes a byproduct, incidental to the main thing. If a single agency were responsible by law and regulation for all Department programs this discussion would turn only on the matter of effectiveness without the need to discuss the matter of harmony between programs. Effectiveness is the main thing in the minds of the farm people. It would seem, therefore, that for the sake of effectiveness too much weight cannot be given to the suggestions, ideas, and complaints of farm people. Rather than be saved by the government a surprisingly large percentage of people want the mechanism of government to afford them opportunity to save themselves. The people must play the part that Will Rogers modestly applied for in the motion picture "A Connecticut Yankee at King Arthur's Court." You may recall that in that picture he was permitted to play the part of "Sir Boss."

It is to be doubted that an appreciable number of extension workers feel maligned when the Department's great money loaning and granting agencies designate themselves as "action" agencies. What they probably feel much more keenly is that after the conception of those agencies by the economic events of the 1920's, it required a long time for the agencies to be born and get going. Democratic programs materialize slowly and after much pain at times, but call these agencies what you will "they never came a wink too soon." Extension workers have been helpful with these great and necessary programs and will no doubt continue to be helpful. Out in the counties at the point of application the job of integrating the programs into the life of the people is far from complete. A strong office in Washington and at state headquarters constitutes the stage property of a democracy. The real "action" is by the real actors—the farm people—who of course are helped immensely by good stage property. It is the duty of all

agencies to be willing to blend themselves into a single motif to support this real "action."

The need for planning, though somewhat more acute and much better implemented since the early '30's, seems to be about the same in character as it has been since about 1921. As to requiring the participation of broader and more varied interests in planning work, is it not true that we now simply have more planners and more facilities available for a better job of planning to include more farm people? In comparing the qualifications for technical leadership in planning with the qualifications of the county agent, which it is agreed are not always adequate, the leading paper states that "The county planning leader of the future will need to be something of a statesman, diplomat, politician, philosopher, economist, and farmer, all wrapped in one." These words have often been used to describe the ideal county agent and they may be aptly applied to any public official who works with farm people. The question may be raised, however, as to whether the county planning leader of the future will be a single super-person—a sort of Moses leading the people out of the wilderness. Rather will not the objective of a better job of planning be attained mainly because there will be a larger number of persons with some technical training participating in planning and a larger number of farm people engaged in it? In other words, county planning is now implemented for better work than ever before. Experienced leaders will agree with the viewpoint that planning is a continuous, growing thing, constantly subject to change and improvement. However, one of the jobs of the future will be to keep up with and make effective such planning as is actually done before it is time for the next step ahead.

While agreeing that differences and similarities exist between the new program planning work and "what extension has always done" there may be different views as to what constitutes the differences and similarities. Planning aims to make the programs more effective in meeting needs which had their inception in the depression of the '20's. These needs existed in 1921 and some of them even earlier; they still exist at the end of 1939. In the early days the county agent was backed up only by extension specialists, research and administrative workers of the colleges and the Department. The job of Extension was and is to diffuse useful and practical information and to encourage its application. Its program is flexible but not implemented for loans and grants, nor for a unified national agricultural control program. Despite the realization of the needs of farm people throughout the decade of the '20's for a more equitable share in the national income and despite strenuous efforts by farm interests to bring this about, it remained for the decade and the leadership of the '30's to see definite plans implemented in some measure with the facilities and powers necessary for meeting such needs.

Although neither the Mt. Weather document nor the results of planning are recognized specifically in law, no one doubts that Congress and the Administration expect results in attaining certain objectives. Congress has taken coordination for granted. If the employed workers everywhere real-

ize the necessity for coordination and approach that particular job in a friendly and cooperative spirit much may be expected. A common understanding of agricultural problems and programs on the part of farm people and public employees is basic to coordination. In promoting such common understanding Extension has been of much help.

In conclusion, when it comes to (1) improving Federal-State relations, (2) fitting national programs to local needs, and (3) coordinating national programs, the county planning procedure is worth a serious trial on the assumption that the essential right spirit is present in all programs or that it will develop as we go along and that the other conditions here mentioned are well met.

DISCUSSION BY H. C. RAMSOWER

Ohio State University

Let me describe briefly the work that has been done to date in Ross County, Ohio, where a "unified program" is now being set up.

A county planning committee was organized composed of fifteen farmers, the county agent, and one representative each from the Soil Conservation Service, the Agricultural Conservation Program, the F.S.A., the Ohio Division of Forestry, and Vocational Agriculture. Community committees composed of three to five farmers were organized. These committees mapped their respective areas. The county committee put the community maps together and made a county map.

A county work committee composed of four farmers well distributed over the county and the county agent then proceeded to build a county land use program. About 15 meetings were held and a skeleton program outlined. The work committee with representatives of each agency in the county then met with other agencies, including the Farm Bureau and the Grange, to learn what each was doing.

The work committee outlined a general policy to follow in building a land use program. Briefly stated, this policy is as follows:

1. There should be a correlated educational program so that each agency having to do with land use adjustments may tell the same story.

2. A minimum five-year program should be developed.

3. Research should be developed where needed to obtain additional facts.

4. The people must be led to feel that the program is theirs and will assist them in achieving a more satisfactory standard of living in their present locations.

5. The individual farm management programs of the various action agencies should be cleared through a central clearing committee composed of the county agent, the chairman of the county Land Use Planning Committee and one representative each from SCS, ACP, FSA, and the Ohio Division of Forestry.

The county work committee in preparation for the 1940 program then proceeded to make recommendations that had to do with the programs of

the different action agencies. Changes were suggested in each and notably in the ACP. For example, a program is worked out for farms with 40 acres or less of crop land. In this group are found 46.3 per cent of all farms in the county. The suggestion is made that these be classed as non-commercial and non-allotment farms if not more than 50 per cent of the crop land is in depleting crops and not more than 25 per cent in any one depleting crop. Acreage in this group is to be estimated. The committee suggests that a maximum of \$2.00 per crop acre may be earned. Practices and payments through which this may be earned are suggested many of which are not now included in the regular program. Similarly, recommendations are made for farms with more than 40 crop acres as well as for non-agricultural or forest lands and for pasture land.

The committee recommends that the SCS, the Federal Forest Service, and the State Division of Forestry jointly work out a program including ACP practices for non-agricultural land, and that this be checked with the county ACP committee.

The Agricultural Extension Service has been made responsible for correlating the educational program relative to the unified program in the county. The local committee, facing the problem of families earning only a meagre living on non-agricultural lands called upon the Department of Rural Economics of the Experiment Station to make a study of these families. Funds provided for this purpose by the Land Use Planning Section of the USDA are being used to make this study.

Thus far the planning procedure would seem to be almost ideal. A committee of local farmers took the initiative and at their own expense of time and travel carefully studied the land of their county and its present uses. They became familiar with all that was being done to improve the agriculture of the county. They then sought the advice of experts and technicians having to do with various activities then under way. Out of this, specific recommendations were made for a program. Certain recommendations are to be emphasized for action in 1940. The program has been developed out of the thinking of farm people. It has not been dictated from above.

The real test is yet to come. The county committee, for example, has presented its recommendations for certain modifications of the ACP program to the county and state ACP committees. At first they met with some resistance. An attitude of defending the existing program and regulations was evident. Later response was more favorable. Just what their ultimate success will be remains to be seen. Those of us who have heretofore sought changes in certain existing programs the better to meet local conditions and situations only to be told with an irritating air of finality that our requests, no matter how valid, could not be granted, naturally have our fingers crossed in watchful, hopeful, waiting.

Anyone concerned with national programs knows full well that there must always be a certain give and take between counties within the state, between states in a region, and between regions and the nation. Farmer committeemen will be the first to recognize such necessity. Relationships, however, are satisfactorily worked out only on a basis of mutual confi-

dence in and respect for the opinions and judgments of all parties concerned. Relationships between the Department of Agriculture and Land Grant Colleges have been difficult and, at times, strained, largely because in the opinions of state people projected Federal plans were not worked out with the states and were not even reasonably well adjusted to state conditions. State interests have been too frequently set aside in the interests of regional or national uniformity.

The Mount Weather Agreement, the Land Use Planning Project were agreed to and set up with the express purpose of beginning the planning with the thinking of farm people. Our experience in Ohio leads us to believe that the seasoned judgment of thinking farmers based on years of experience is a good guide in farm planning on either local, county, state or national levels. If, therefore, this grass-root thinking is made a real part of planning on different geographical levels, if national programs can be reasonably well adjusted to harmonize with local needs and interests, if we are willing to follow that well known and accepted educational principle of beginning where the people now are in their thinking and planning even though it prolongs the process of building national plans, if we are willing to modify our fetish for national or regional uniformity, if we are willing to place much larger responsibility and authority in local administrative agencies than has hitherto been done, the Mount Weather Agreement will be effective in promoting real cooperation between the Department of Agriculture, the Land Grant colleges and, more important, the people who live on the land.

If we are not willing to do this, if all those who have a part in executing this plan do not seriously adjust themselves to this new procedure, for it is new in building national plans and will require basic modification in the traditional approach, especially on higher levels, then the Mount Weather Agreement will not work and will take its place in the archives of history as just another plan that failed to do what its originators hoped that it would do.

AGRICULTURAL SURPLUSES AND NUTRITIONAL DEFICITS: A STATEMENT OF THE PROBLEM AND SOME FACTORS AFFECTING ITS SOLUTION

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When the President called the attention of Congress to that third of our nation which is "ill-housed, ill-clad, ill-nourished," he succinctly summarized a problem with which researchers, administrators, and the people themselves are becoming increasingly concerned.¹ Considering our natural resources, our mechanical facilities and the number of competent workmen available, why should any sizeable portion of our population lack adequate housing, or sufficient clothing, or the food necessary for an adequate diet?

Agricultural workers, of course, are chiefly interested in the nutritional aspect of this problem, since approximately 85 per cent of farmers' income is derived from the production of commodities used for food, and since agricultural surpluses, either actual or potential, have been one of the dominant factors in the agricultural situation since 1920. As an opening contribution to this discussion, I want to consider the character of our agricultural surpluses, to review the data available with respect to nutritional deficits and the extent to which food consumption should be increased, and to indicate some of the factors which I think need to be considered if the surpluses are to be used to wipe out the deficits—if both farmers and consumers are to be benefited.

Agricultural Surpluses

Although economists were rather skeptical concerning surpluses, or over-production, in the not far distant past, it seems safe to assume that most agricultural economists would be willing to agree that *a surplus of any given commodity exists whenever the quantity available for market is so large that it can only be sold at prices which will not allow producers to recover normal costs, or which will not allow them to maintain the (same relative) scale of living to which they are accustomed.*²

¹ "I see one-third of a nation ill-housed, ill-clad, ill-nourished." Franklin D. Roosevelt, Second Inaugural Address, January 20, 1937.

² A. W. Flux, in discussing the term "surplus" in Palgrave's *Dictionary of political economy*, indicates that "In one sense of the word goods cannot be in excess, cannot be truly a surplus, so long as there remain any purposes to which these goods would be applied if they were free, but to which, having a cost price, they are not applied. In the more usual sense, however, any supply the disposal of which requires a reduction of price may be denominated a surplus supply. . . . In so using the word, agreement with the ordinary language of business is preserved."

Several different kinds of agricultural surpluses may be distinguished—*short-run* surpluses as a result of too heavy shipments, either to some particular market or to all markets, within some short period; *seasonal* surpluses as a result of overplanting or extremely favorable yields of crops or commodities which cannot be easily stored; *crop-year* surpluses as a result of overplanting or extremely favorable yields of staple commodities, considerable quantities of which are ordinarily stored; and *continuing* surpluses, either actual or potential, in cases where the production of a particular commodity or group of commodities is over-expanded over a continuing period of considerable length.

There is, I think, little need of endeavoring to describe and measure existing surpluses to an audience already familiar with the current agricultural situation. Certainly, we could all agree that surpluses exist whenever prices fall so low that farmers cannot recover marketing costs by harvesting fruit and vegetable crops already produced. Such examples can be easily found. In fact, the Division of Agricultural Statistics often estimates production not harvested for a considerable number of fruit and vegetable crops, and these quantities are by no means insignificant.³

Certainly, we could all agree that surpluses exist, or producers are faced with an all-important problem, whenever the widespread liquidation of livestock is forced due to drought, as was the case in 1934, or whenever increased acreages or numbers together with un-

Current usage is closer to this second or more usual sense of the term: "A surplus of farm products might be taken to mean that too much . . . had been produced . . . to return to producers as much as their time and resources would have been worth if directed to some other use. . . . Surpluses may arise because of inadequacies of marketing methods; . . . because farmers plunge too heavily in some lines; . . . (or because of) a general lack of balance between farming and other industries." M. J. B. Ezekiel: *Kinds of agricultural surpluses*, Address before Section O, American Association for the Advancement of Science, Philadelphia, December 30, 1926.

"The criterion of the existence of a surplus . . . is a volume of production . . . so large . . . that the producers of it have to sell at prices that will not allow them to operate with their accustomed profits, income, and scale of living." J. D. Black, Part II, *Agricultural reform in the United States*, McGraw-Hill, 1929.

"The paint was off the barns; there were leaks in the chicken-house roofs; the fences sagged for want of staples; the fields were bare of fertilizer. The old car, with last year's license plates still on it, was up on skids under the shed. Down the road the little red schoolhouse was silent, though summer was still far off. At the county seat, the sheriff's books told of back taxes 2 and 3 years delinquent; and the State's lien on farm homes which those back taxes represented was redoubled by a private creditors' lien of past-due mortgage debts. . . . And (all this) partly because there was so much wheat, so much cotton, so much tobacco, so many pigs, and so much corn." *Achieving a balanced agriculture*, G-20, Agricultural Adjustment Administration, Washington, August 1934.

³ See, for example, estimates of quantities without farm value or not harvested carried in footnotes to Tables 208, 217, 225, 229, 233, 237, 239, 242, 245, 248, 251, 271, 282, 289, 293, 294, 298, 303, 308, 319, 324, 341, 344, 349, and 354, *Agricultural Statistics*, 1939.

usually favorable yields suddenly increase production of a staple commodity to an abnormal level as was the case with cotton in 1937 and with citrus fruit, especially grapefruit, in 1938, or whenever excessive stocks are accumulated, as was the case with several commodities in the period 1929-1933.

But it is neither the seasonal surpluses which are either marketed at a loss or not harvested, nor the over-large carryovers of our staple crops that are most important. The real surpluses with which agriculture is faced are best measured in terms of the extremely low incomes received by one-third to one-fourth of our agricultural population who are inadequately employed and by the 25 to 35 million acres of good agricultural land which commercial farmers, working through the Agricultural Adjustment Administration, are endeavoring to hold out of production in an effort to better adjust supplies to market demand. We have enough land, enough farmers, and sure enough control of an improved agricultural technology to easily increase agricultural production, provided additional markets can be found.⁴

The Need for Better Nutrition

Even though we are apparently as well fed as the people of any other nation, we can all agree that it is extremely desirable to raise the nutritional level of a very considerable portion of our population. That many families are ill-fed or under-fed is a matter of common observation; and studies have indicated that perhaps as many as 22 per cent of our American children were suffering from some form of malnutrition prior to 1924,⁵ while the recent studies of the Bureau of Home Economics indicate that there is still plenty of room for improvement.⁶

Although enough food is consumed in this country to give everyone a fairly satisfactory diet provided it were distributed on the basis of nutritional need, we are all aware that such a distribution does

⁴ "It seems clear that there was in agriculture in the late 1920's an unutilized labor force equal to at least 20 per cent of the total. A part of this could have been absorbed in agriculture with its existing equipment, thereby substantially increasing agricultural output." E. G. Nourse, Ch. I, *America's capacity to produce*, The Brookings Institution, Washington, 1934.

"Agriculture shows an inherent capacity to meet new requirements as they develop." Ch. 2, Part III, *Final report of the mixed committee of the League of Nations on the relation of nutrition to health, agriculture and economic policy*, Geneva, 1937.

⁵ *Mixed Committee Report, ibid.*, Ch. 7, Part III.

⁶ The material in this section is based chiefly upon Stiebeling and Coons' article, *Present day diets in the United States*, and Stiebeling's section in the article, *Better nutrition as a national goal*, *Yearbook of Agriculture*, U. S. Department of Agriculture, 1939; and upon the statement by Milo Perkins, *The food stamp plan and the farmer*, before the Fruit and Vegetable Committee of the American Farm Bureau Federation, Chicago, December 1939.

not exist. Actually, the Bureau of Home Economics found that 5 per cent of the non-relief families included in their surveys in 1935-36 were spending too little for food to obtain even the minimum essentials of an economically fair diet, assuming all foods were wisely selected; and altogether it is estimated that the diets of at least one-third of the non-relief families studied will classify as poor or in need of definite improvement. In addition, we should remember that approximately 15 per cent of our population is currently eligible for relief, and that the average expenditures of at least one-half of these people for food need to be increased if they are to obtain an adequate diet.

In general, the chief difference between good diets and poor or average diets is found in the quantities of "protective" foods included. That is, modern dietary studies are increasingly concerned with the protein, calcium, iron, and vitamin (A, B₁, riboflavin, and ascorbic acid) content of the foods included in the diet, and it is these elements which are supplied by the so-called protective foods—eggs, dairy products, succulent vegetables, and fresh fruit. As a result, increases in the consumption of these commodities are most desired from the standpoint of nutritional improvement.

In this connection, Dr. Stiebeling has made some estimates which should be of interest to everyone interested in this field.⁷ According to such data as are now available, the following increases in national consumption would be needed in order to raise family consumption to the rather generous level of freely chosen diets that can be rated as good:

Milk.....	20 per cent
Butter.....	15 per cent
Tomatoes, citrus fruit.....	70 per cent
Leafy, green, and yellow vegetables.....	100 per cent
Eggs.....	35 per cent

Such increases would not necessarily result in "optimal" diets from the standpoint of the expert—e.g., there are recognized authorities who believe that our average per capita consumption of dairy products should be doubled. Instead, these estimates give a first guess as to the increases which might be expected if all families received adequate incomes and chose the same types of food as are now selected by families whose diets classify as nutritionally good.

But if consumption were to be increased only to the extent necessary to supply a fair diet to families now having poor diets, or to meet minimum nutritional requirements, the following increases would be needed:

⁷ Pp. 380-381, *ibid.*

Milk.....	10 per cent
Butter.....	10 per cent
Tomatoes, citrus fruit.....	10 per cent
Leafy, green, and yellow vegetables.....	80 per cent

Considering these minimum and maximum estimates and assuming that families and individuals now obtaining adequate diets continue their current consumption pattern, it seems safe to conclude that the consumption of 10 to 20 per cent more milk and butter, of at least 20 per cent more tomatoes and citrus fruits, and about double the current quantity of leafy, green, and yellow vegetables is needed in order to obtain substantial nutritional improvement.

This raises the question as to what effect these increases would have on agriculture, assuming the necessary income or social devices needed to assure such increases were at hand. So far as dairy products are concerned, an increase of 5 to 10 per cent in the number of cows kept for milk, and of 5 to 10 per cent in the average production of milk per cow would be needed. To support such an increase would require the feed from an additional 5 to 10 million acres of harvested cropland, and either some additional acreage of pasture or more attention to pasture improvement, assuming that current methods of feeding remain unchanged. The indicated increase in citrus fruit production is already being realized, or enough trees will soon come of bearing age to accomplish it. And so far as vegetables are concerned, an increase of about 1,500,000 acres or 50 per cent above the current commercial vegetable acreage is indicated.

Altogether, it would require the use of about 6,500,000 to 11,500,000 additional acres of harvested cropland to supply the additional quantities of protective foods needed for nutritional improvement. We should consider this as a minimum estimate of the acreage increases needed. That is, attention is currently centered on the need for including a greater quantity of the protective foods in the diet, due to the fact that many varieties and forms of these foods yield excellent returns in nutrition, cost considered. But if good diets were to be achieved through the free choice of foods by families with adequate incomes, it would be reasonable to expect some increase in the consumption of almost all classes of food.

In this connection, it may be worthwhile to consider briefly the experience of the Federal Surplus Commodities Corporation with the Food Stamp Plan. Such data as are now available indicate that if 75 per cent of all families eligible for relief participated in the Stamp Plan and if all subsidized purchases represented additional consumption, an increase of over 5 per cent in the consumption of such a staple product as flour might be expected, and that very

considerable increases in the consumption of eggs, butter, such products as rice and dried prunes, and fresh fruits and vegetables generally could be expected. But whether we conclude that the acreage devoted to food production should only be increased about 3.5 per cent in order to supply the additional quantities of protective foods needed, or that a general increase of about 10 per cent is needed, our agricultural plant is sufficiently under-utilized as to make such increased production feasible, provided an effective demand can be created.⁸

Some Factors to Be Considered

The real question with respect to agricultural surpluses and nutritional deficits is not concerned with either the exact size of surpluses or the exact extent of the increases needed in order to obtain a better national diet. Instead, it is concerned with the means to be used in bringing the two together—with the solution rather than with a statement of the problem. In this connection, the following comments are offered.

(1) Farm people themselves need more adequate diets, and a very considerable amount of acreage and labor could be used to improve the diets of farm families, especially in the self-sufficing areas and in the South. For example, a recent study indicates that 6,000,000 acres of cropland and 9,000,000 acres of pasture land might be used for the production of additional farm-grown products for farm family consumption in the South.⁹ This acreage is about comparable with the reduction in cotton acreage which has taken place since 1928-32. Certainly, considerable deficiencies exist in other areas and increased attention needs to be directed to the efforts of the State Colleges and of the Farm Security and the Agricultural Adjustment Administrations to encourage farm gardens and the production of food and feed for farm family consumption.

(2) An educational program can contribute to the solution of the problem. But attention is called to the fact that education is usually a relatively slow method of obtaining improvement; that it will not solve the problem for families whose incomes are too low to

⁸ Acreage of harvested cropland averaged 360 to 365,000,000 acres prior to 1933. At average yields about 260 to 265,000,000 acres are required for the production of domestically consumed food and fiber for 130,000,000 people, and 40 to 45,000,000 acres of feed grains and hay for workstock. This leaves 55 to 65,000,000 average acres for export, for increasing domestic consumption, or for shifts to other uses in the interest of conservation. See: *Looking ahead on agricultural policy: An appraisal of economic and social factors bearing on agricultural adjustment*, Bureau of Agricultural Economics, December 1936, and J. P. Cavin, *Consumption of agricultural products, The agricultural situation*, January 1939.

⁹ Oscar Steanson and E. L. Langsford, *Food, feed, and southern farms: A study of production in relation to farm needs in the South*, Farm Management Report No. 1, Bureau of Agricultural Economics, November 1939.

afford an economically fair diet, even assuming wise selection; and that in the case of many families whose incomes are sufficient to support a reasonably good diet provided their foods are properly selected, such a selection would simply mean shifting the demand from one class of food to another, so that the net effect would be to change the form of our surpluses rather than to increase total demand.

(3) Another solution to the problem is embodied in the suggestion that the national income should be increased. This suggestion, of course, is based on the fact that we have the resources, the workmen, and the technical equipment to increase our national income or aggregate national production, and upon the observation that the per family expenditure for food increases as family income is increased. But in general, the amount spent for food tends to increase at a slower rate than the increase in income; while it seems safe to assume that the quality of food purchased and the quantity wasted both tend to increase as incomes are increased. Attention is also called to the fact that an increase in the national income does not in itself involve the elimination of low-income families, nor does an increased expenditure for food insure a correct selection from a dietary standpoint.

(4) Attention should be centered upon the need for direct action, if we are interested in actually utilizing agricultural surpluses and in improving the national diet. An effective educational program and an increasing national income are both to be desired, and both of these forces will work toward nutritional improvement. But one of our chief problems is to find more direct means of increasing the consumption of food among low-income people generally, whether on relief or not.

Dr. Stiebeling estimates that about sixty dollars a year would be needed to buy the extra foods—eggs, milk, butter, fruits, and vegetables—required to bring the diets of poorly fed families up to an economically fair level.¹⁰ Even if as much as six hundred million dollars should be involved, the cost would not seem excessive in view of the amounts which are currently being spent in the form of relief or subsidies among the various classes of our population. Of course, the problem is complicated, but I see no reason to adopt the attitude that the frailties of human intellect are such that the only alternatives are to depend upon “free competition” in a semi-organized world or to sit and wait for the development of “an all-wise and beneficent dictatorship.”

¹⁰ Pp. 383–384, *op. cit.*

PROGRAMS FOR USING AGRICULTURAL SURPLUSES TO REDUCE MALNUTRITION AND TO BENEFIT FARMERS

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Recent discussions of prorates,² differential pricing of foods, and consumer subsidies have been very interesting, but perhaps have tended to become involved in certain side issues; such as the proper field of economics, the use of utility theory, and the reduction of output. In this paper the writer will try to limit the discussion as far as possible to two things: first, a description of certain surplus disposal programs; and, second, a consideration of their possible contributions to better nutrition and greater farm income.

Several programs of surplus disposal have been tried in the United States and abroad. They can be put into three general groups according to the way in which surplus foods are made available to undernourished families: (1) free foods, (2) reduced prices, and (3) the Food Stamp Plan which is a form of consumption subsidy.

Free Foods

When any country is faced with the existence of widespread undernutrition together with price-depressing surpluses of food at the farm, an obvious solution is for some public agency to buy the surpluses, and to give them to those who need them most. This has been the major—and until this year, the only—method followed by the Federal Surplus Commodities Corporation. The most spectacular programs have been those designed to meet emergency conditions such as the surplus of livestock resulting from the drought of 1934 and the surplus of citrus fruits resulting from favorable weather in 1938-39. In these cases there was an actual physical surplus which would have been wasted unless definite steps had

¹ Norman L. Gold of the Federal Surplus Commodities Corporation and A. C. Hoffman of the Bureau of Agricultural Economics helped the writer considerably in the preparation of this paper.

² F. V. Waugh, E. L. Burtis, and A. F. Wolf, The controlled distribution of a crop among independent markets, *Quar. Jour. Econ.*, November, 1936.

G. J. Stigler, A generalization of the theory of imperfect competition, *THIS JOURNAL*, August, 1937.

F. V. Waugh, Market prorates and social welfare. *THIS JOURNAL*, May, 1938.

G. J. Stigler, Social welfare and differential prices. *THIS JOURNAL*, August, 1938. (Also rejoinder by F. V. Waugh in same issue.)

Geoffrey Shepherd, Price discrimination for agricultural products. *THIS JOURNAL*, November, 1938.

J. M. Tinley, Some comments on the social aspects of prorates, *Jour. Marketing*, October, 1939.

been taken to increase consumption. In addition to handling these emergency situations of physical surpluses, the FSCC program has been used to buy certain foods (butter, for example), when there was a surplus above what the market could absorb at prices which were considered reasonable.

In the year ending June 30, 1939, the FSCC bought and distributed to needy families about two billion pounds of foods. Purchases were made of 32 different agricultural products at a cost of about \$66,500,000. These commodities were distributed to some three million families, or about eleven million persons.

Most of these purchases were distributed through State welfare agencies as an addition to other forms of relief to persons in need of public assistance. Recently, however, an increasing proportion has been donated to be used as free lunches in public schools located in low-income areas. At the peak of the past fiscal year about 900,000 children in 14,000 schools were being reached by this program. The school lunch program is now being expanded and by the end of the 1939-40 school year may reach 5,000,000 children.

Lower-Priced Foods

Relief distribution and school lunches are outright gifts of free food. Experiments have also been made in the United States and abroad with several kinds of price differentiations designed to sell surplus foods to low-income families at less than the regular market price. Most of these experiments have been on a small scale but are well worth considering here. One of the first attempts known to the writer to combine farm relief and consumer relief through differential pricing is known as the "Bishop Auckland experiment" which was conducted in 1934-38 by the Potato Marketing Board to increase the consumption of potatoes in Bishop Auckland County, Durham, England. A detailed and comprehensive account of this experiment has been published.³ Briefly, the plan was as follows: the Board bought potatoes from established wholesalers and sold them on a cash and carry basis from its own warehouse to families on relief rolls. A limited amount was allowed each family. The price was kept low by selling only two afternoons a week, by requiring recipients to bring their own containers, and by a subsidy from the Board. An ingenious arrangement was made to compensate local retailers for any loss in their potato sales.

The British Milk Marketing Board has also provided low-priced milk through what is known as the "Milk in Schools Scheme." A government subsidy is used to provide a third of a pint at $\frac{1}{2}$ d. in-

³ An experiment in the distribution of potatoes at Bishop Auckland. Misc. Pub. No. 2 of the Potato Marketing Board, 1935.

stead of the current market price of 1 d. In the year ending September 1938, the Board provided about 26 million gallons of milk to an average of somewhat less than 3 million children. Several other differential price arrangements have been tried in other countries; notably in Germany. We shall not try to cover them here, but shall proceed to mention briefly several such experiments in the United States.

Some of the early marketing agreements of the Agricultural Adjustment Administration included differential price arrangements which should be noted. The walnut agreement in 1933 provided that surplus nuts be pooled and sold by an industry board in ways which would not compete seriously with sales in the regular markets. The board found that one such method was to shell surplus walnuts and sell them at a low price. The major objective probably was not to benefit any particular group of consumers, but in practice any program of this kind makes it possible for low-income groups to buy at a lower price.

A two-price plan for California pears was begun in 1936. A government subsidy made it possible to sell surplus pears at reduced prices in large areas in the South and in the Central West. In these particular areas consumer incomes and pear consumption were both low.

Low-priced milk has been provided to low-income families in New York City for several years through the so-called "8 cent milk depots." The price at these depots has been kept at 8 cents a quart although the regular retail price has fluctuated widely. The delivered price has been as high as 15 cents a quart, but at times some retail stores have sold milk at less than 8 cents. The city provides the stores used for the depots. Expenses are reduced in several ways, and all the reduction in price is made possible by narrowing the dealer's margin. According to some analyses⁴ the dealers may have either handled this business at a loss at certain times, or else paid the farmer less than the Class 1 price, but probably the reduced cost of distribution and selling allows the dealer to break about even most of the time.

A number of the new milk marketing agreements provide low-priced milk for relief families. In this case the lower prices are met by a combination of three factors: the farmer accepts less than the Class 1 price; the distributor reduces his charges for processing and distribution; and the Government contributes a subsidy.

One other kind of differential pricing has been encouraged for

⁴ Leland Spencer and Charles Blanford, *The distribution of milk through health and welfare depots in New York City*. Mimeographed publication A.273, Cornell University, May, 1939.

years by many public agencies. City and State governments have often fostered certain low-cost methods of retailing, such as push-cart markets, farmers' curb markets, and cash and carry milk depots. Such low cost outlets usually are patronized mainly by low-income families who get the advantage of lower prices. It might be well to note in passing that public policies are not always directed to the encouragement of low-cost marketing—witness, for example, the current wave of price maintenance laws, penalties to merchant truckers and peddlers, chain store taxes, and other measures tending to prevent economies from being passed on to the consumer in lower prices.

The Food Stamp Plan

The Food Stamp Plan is not technically a differential price plan, but falls under the general heading of subsidized consumption. The plan began in May 1939 in a few cities on an experimental basis. It is being expanded gradually and in early December 1939 was in operation (or scheduled to start) in 27 cities. Relief families, and in one experimental town other low-income groups, are eligible to participate if they wish. Such evidence as is available shows that these families usually spend about a dollar a person each week for food. If they participate in the plan they must buy at least a dollar's worth of orange-colored food stamps and are not allowed to buy more than a dollar and a half's worth. For each dollar spent for orange-colored stamps the Government gives 50 cents in blue-colored stamps. Both kinds of stamps are used to purchase foods at regular retail prices in any food store. The orange-colored stamps are good for any kind of foods or for most other items usually sold in retail food stores, but the blue stamps can be used only to buy certain foods on the "surplus list" as approved by the Secretary of Agriculture.

This plan tends to give low-income families an increase of about 50 per cent in purchasing power for foods. The cost is met by a subsidy from the Federal Treasury, but the Government takes no part in buying, processing, transporting, or selling the foods handled under the plan.

Effects Upon Nutrition of Low-Income Families

Apparently all the plans mentioned above tend to enable, and to induce, low-income families to consume more foods. It is in this group of families that undernutrition is greatest and that health appears to be most endangered by lack of sufficient food and by poorly balanced diets.

So far the writer knows of little specific evidence of how these plans have affected nutrition and health, but the Bureau of Home Economics is now making a detailed study of the effect of the Food Stamp Plan on diets. It is fair to say that the judgment of most nutrition and health experts has been that some of the plans have been very beneficial. The current annual report of the FSCC states: "School officials and health and nutrition authorities have enthusiastically endorsed the school lunch program. They reported that children receiving the lunches showed gains in weight and had fewer illnesses and absences from school than before the program began."

Scientific studies are badly needed to measure the degree to which these various programs actually improve diets and health. In the meantime, perhaps some general observations may be warranted. It is quite evident that some of these plans have induced low-income families to consume substantially greater amounts of certain foods. The British Potato Marketing Board estimated after a careful study that the Bishop Auckland experiment increased potato consumption by 69 per cent. Relief distribution in this country has, without doubt, induced low-income families to consume much more grapefruit and butter than they formerly did. Yet, it is not safe to assume that large increases in any particular food always mean better nutrition. If food distribution is limited to a few commodities it is even possible that poor families might fill their stomachs with cheap surplus potatoes, grapefruit, or beans, and decrease their purchases of some of the "protective" foods in which their diets were already deficient.⁵

If we are to combine farm relief with a real improvement in nutrition we must give careful thought to the development of a program which will help consumers to get the kind of diet they need. Although this might be accomplished theoretically by free distribution of the market basket type where each family would get what the experts think it should have, there are several disadvantages to this method. Aside from any social theories, it is a well known fact that the wants and needs of families vary greatly with age, composition, nationality, and similar factors. This, in itself, is enough to indicate the need for a great deal of flexibility in the program if consumers are to get the kinds of food needed from a nutritional standpoint.

Possibly this flexibility could be attained under a program of free

⁵ This does not imply that the present FSCC purchase and distribution leads to poorer nutrition. We have already noted that 32 different agricultural products were handled by that program during the past year. However, the relief family gets only a few foods at any one time and has little choice as to kinds and amounts.

foods, but it would be difficult. Flexibility also could be provided under a program of differential pricing if the Government followed the definite policy of always providing a choice of several foods at the lower price. So far, however, neither the distribution of free foods nor the differential price plans mentioned above have provided much flexibility. The consumer is enabled to get substantially more than the usual amounts of one kind of food—or, at best, of a few kinds. On the whole, this probably has improved nutrition somewhat, but the improvement doubtless is less than would be possible if the consumer had greater choice.

The Food Stamp Plan gives consumers much greater choice than do the other programs as they are now operated. Any family buying the minimum number of stamps can purchase a fairly adequate diet.

An important fact to remember is that poor nutrition is due only in part to lack of purchasing power, and it is only this part of the problem which is met by the programs we are discussing here. The other important cause of poor nutrition is ignorance about food values.⁶ If our programs are to be most effective in improving nutrition we will need research dealing with the nutritional needs of low-income families, and we will need an educational program for this particular group.

Effects upon Total Food Consumption and Expenditures for Food

So far we have been considering only the consumption of low-income families which are brought into the programs. What about total consumption? First, let us consider only the short-time aspects. Assume that there is available at the farm a given, fixed amount of food products to be disposed of in a given period. Will the proportion moved into consumption be increased by free distribution, by differential pricing, or by any form of consumption subsidy?

Yes, if there is what we called earlier in this paper a physical surplus; that is, if there is more than the ordinary distribution process would handle. The 1938-39 citrus crop was so large that the regular process of marketing probably would not have moved it all if the farmer had given it away. In this kind of situation any of the programs we are discussing would increase total consumption. But the more typical situation is that the farmer will find some market for his entire crop. Even though the supply of butter is very large it all usually moves into consumption without any surplus disposal pro-

⁶ This is discussed in several parts of the 1939 Yearbook of Agriculture. See, for example, Dr. Stiebeling's discussion on pp. 384-85.

gram. Unless there are actual physical surpluses, the total consumption of a given food or group of foods is not affected much in the short run by any of these programs. The main effect of extending any of these programs would not be to increase total consumption immediately, but to make a greater part of the supply available to low-income families; and thus to improve their diets, and, also as we shall indicate later, to raise farmers' incomes.

In the absence of physical surpluses, total consumption is approximately equal to total production. In the short run total production is not affected by surplus disposal plans. In the long run any surplus disposal plan which strengthens prices to the farmer is likely to lead to increased production, and, therefore, to increased consumption. Some critics of differential food prices insist on making comparisons like the following:⁷ "Discriminating monopolies would result in a lower national dividend than would be produced under conditions of simple competition." This is obviously true if we assume that each monopolist would restrict output, but seems to have little bearing upon the problem before us. It confuses two things; a comparison between monopoly and competition, and a comparison between differential pricing and uniform pricing.

Let us assume for the moment that some of the programs we are discussing will raise the income the farmer gets for a crop of any given size. Then, if production is competitive the farmer will increase his output in the long run. And, if production is not strictly competitive but is regulated to reach some objective such as parity price, parity income, or cost of production, a successful surplus disposal program makes it possible to reach such a goal with a higher level of output than otherwise.

Effects upon Incomes of Farmers

The surplus disposal programs we have mentioned are too small to have had any measurable effect upon national farmers' income. Therefore, we shall not try here to estimate what their effects *have been*, but will rather try to show what the effects of an extended program *might be*.

Let us consider first the program of surplus purchases and free distribution. If this program is limited to purchasing physical surpluses which otherwise would have no market, and if these purchased foods are given away there can be no gain in consumer expenditures for these foods. There is, in fact, likely to be some drop in consumer expenditures for these foods because some of the people now getting them free would have bought some amount of

⁷ J. M. Tinley, *op. cit.*, p. 123.

them. Prices in the regular market will not be strengthened if the program is limited to buying supplies which otherwise would not have been shipped. Moreover, the cost of the program must cover not only the purchase of supplies from the farmer, but the transportation and distribution to the consumer. Therefore, in the short run, at least, a limited purchase program of this kind would not raise farmers' income as much as would a direct subsidy to the farmer.

If the purchase program is extended to buy more than the physical surplus it is quite possible that the total expenditures of consumers will be raised, since this kind of program would tend to raise prices in the regular market. If the demand for foods on the part of non-participating consumers is inelastic (and it probably is), such a program would induce them to pay more money for less food. Although the participating group might spend less, it is quite likely that such a program might raise total consumer expenditures for a given supply of foods.

What about marketing costs? In the short run, at least, the expense of Government distribution may be an added social cost. We already have a large number of dealers, processors, and transportation companies equipped to handle food supplies. When the Government sets up an additional system of distribution which takes over part of the business which otherwise would have been handled by private concerns it is bound to mean either less private employment or greater social cost unless there is no useful alternative work for those engaged in government distribution. In the short run, it is likely that the total amount of labor and capital required to handle food would be increased if the Government handled part of the normal market supply. In the long run it might mean less private employment, more Government employment, and perhaps greater efficiency. The FSCC has done a good job in developing efficient, low-cost methods of distribution and some such Government agency might in the long run make important reduction in food marketing costs if it did handle part of the foods now moving through regular channels of distribution.

This, of course, raises some questions which are beyond the scope of the present paper—particularly the extent to which the Government ought to compete with private industry. We shall not discuss these questions here. The only point to be emphasized is that, however efficient Government distribution may be, it is likely to be an added social cost, at least in the short run. This is one of the points which is commonly overlooked when comparisons are made between the cost of distribution of surpluses by the Government in comparison with the costs through private industry under any arrangement like the Food Stamp Plan.

If the above analysis is correct, then two items must be subtracted from the increased expenditures of non-participating groups before we have a measure of the net increase in farmers' incomes; that is, the increase in income minus government subsidy. These are the loss of former expenditures by participating families and the cost of Government purchasing and distribution.

A differential pricing program and the Food Stamp Plan would affect consumer expenditures in about the same way. In the first case, low-income families are given price reductions either for a single food or for several foods. Under the Food Stamp Plan their purchasing power is increased in such a way that they can buy more foods with the same amount of money. It is a mathematical fact that if low-income groups have a more elastic (or less inelastic) demand for foods than do the higher-income groups, total consumer expenditures can be raised by charging the low-income groups a price below that charged to other consumers.⁸ Any consumption subsidy like the Food Stamp Plan which is made available to low-income groups will have somewhat the same effect as a lowering of prices to that group. That is, total consumer expenditures in cash will be increased—or total consumer expenditures in cash and stamps will be greater than the cost of the subsidy.

There is not enough room here to discuss many details of the Food Stamp Plan; such as its effects on expenditures for foods on the surplus list as compared with foods not on the list, and the effects of establishing minimum and maximum stamp purchases. These and other detailed aspects of the Food Stamp Plan are now being studied jointly by the BAE and the FSCC.

We have indicated that either the Food Stamp Plan or differential pricing for the benefit of low-income groups will ordinarily raise total consumer expenditure by somewhat more than the subsidy—how much more we do not know.⁹ Marketing costs may also

⁸ This is discussed in some detail in the paper by Waugh, Burtis, and Wolf, *op. cit.*

⁹ The writer feels he should disagree with Shepherd's conclusion that "where the demand curve is a straight line . . . the increase in total returns would be small—under the conditions described in this paper not more than 4 per cent." As a matter of fact, it is possible to construct a pair of demand curves which meet all of Shepherd's specifications and still make possible increases of 20 per cent, 50 per cent, 100 per cent, or any other desired figure. The degree of gain in returns depends not only on the shape of the demand curve, but also on the relative elasticities and on the proportions bought by the two groups.

While we are not prepared to make a forecast of the degree to which an extended Food Stamp Program would affect consumer expenditures, marketing charges, and farmers' incomes, the following example might be of some interest. If the plan were extended to reach 15 million persons now spending 800 million dollars annually for food, or 5 per cent of a total food expenditure of 16 billion dollars; if this group were given a subsidy of 400 million dollars in blue stamps; and if the elasticity of demand in the non-participating group were one-half; total food expenditures in

be affected. Some of the differential pricing plans we have mentioned have tried to reduce marketing costs. If the total marketing bill could be lowered by either differential pricing or by a variation of the Food Stamp Plan, the farmer would make a double gain. For that reason it is important that consideration be given to lowering marketing costs under the Food Stamp Plan by such methods as concentrating the Stamp business in a few of the most efficient stores in each city—although, here again, this raises problems beyond the scope of the present paper.

An extension of the present Food Stamp Plan throughout the country probably would not affect dealers' margins much. If anything, they would probably increase slightly because average retail prices of food would rise slightly. Available evidence indicates that when food prices advance dealers' absolute margins advance somewhat, but their percentage margins decline. Thus, part—or conceivably all—of the increase in consumer expenditures might be absorbed by increased margins. This would be most likely for highly processed foods where the farmer normally gets only a small part of the retail price.

The above discussion assumes that the main effect of an extended Food Stamp Plan would be to induce low-income families to consume part of the supplies which would otherwise be sold in the regular market and would depress prices. If the plan were limited to moving physical surpluses the cost probably would be higher than the cost of direct distribution by the Government, although no complete cost data covering all Federal and State expenses have yet been made public.

Conclusion

Although, at several points we have admitted the difficulty of making quantitative estimates it is perhaps fair to conclude (1) that the programs we have been discussing would improve nutrition among low-income families; (2) that under some arrangement like the Food Stamp Plan the income of farmers would probably be raised as much, and perhaps more, than by the amount of the subsidy; and (3) that any such plan which raises farmers' incomes for a given quantity of foods would tend to increase total food production and consumption in the long run.

The writer is willing to agree that the public should decide

cash and stamps would be increased by about 725 million dollars. An analysis of margin data in Been and Waugh's: Price spreads between the farmer and the consumer (U.S.D.A. mimeograph, July 1936) pages 10-15 indicates that roughly one-sixth of this amount, or about 120 million dollars might be absorbed in higher marketing costs—leaving about 605 million dollars as the increase in farmers' incomes. This is not intended as a forecast, since the quantitative results depend mainly on the unknown elasticity of demand of non-participating families.

whether such results are good or bad; moral or immoral; desirable or undesirable; just or unjust; pro-social or anti-social. Public reaction to the Food Stamp Plan would seem to indicate that a large majority thinks that it is a good thing, at least at present.

DISCUSSION BY NORMAN LEON GOLD

Federal Surplus Commodities Corporation

In terms of public policy, although the place of subsidies in economic activity has been larger than many of us have realized,¹ the emphasis on the problem of inadequate nutrition is relatively new. The approach to the problem has generally been indirect. It has been important in determination of the levels of relief assistance, though the attention to this phase of the problem has varied widely over the country. It has become increasingly important in federal agricultural policy as a result of the surplus problems. It is difficult to say how far the nutritional aspects are met by this approach. However, the economic status of our lowest income groups appears to be such that even general approaches, based on the agricultural situation alone, are likely to contribute substantially toward improved nutrition. Until public opinion has been well-developed on the importance of action to assure minimum nutritive standards for the country as a whole, public action in the interests of better nutrition is likely to be most adequately supported and directed through the agricultural approach.

Mr. Wells and Dr. Waugh have discussed the meaning of surpluses in their economic aspects. Mr. Wells' discussion is broader, I think, than the definition he sets forth. In his concise definition, he suggests that a "surplus exists whenever the quantity available . . . can only be sold at prices . . . below 'normal costs' or insufficient to maintain the accustomed scale of living." Subject to the limitations of any concise definition, I believe, that three characteristic surplus conditions in agriculture should be recognized:

1. Available supplies in excess of what can be marketed at any price (i.e., positive price to growers) in view of the marketing organization, degree of competition, and more importantly, the level and distribution of consumer income.

Mr. Wells' definition, I believe, presumes that all of the supply can be sold at some prices. He refers, however, to the extremely large quantities classed by the Division of Agricultural Statistics, as "not harvested on account of marketing conditions." Although, as Dr. Waugh suggests, such *physical* surpluses may not be "typical," they are certainly not insignificant.

2. The second condition is formally covered in Mr. Wells' definition and implies that the surplus is a part of the supply that cannot be sold at "remunerative" prices or so as to provide "adequate" income. The all-

¹ See Herbert Simpson, The problem of expanding governmental activities, *The American Econ. Rev.*, 24 (1), March, 1934.

important considerations here are "remunerative" and "adequate." "Costs" and "standard of living" have apparently not been satisfactory for administrative policy, and I believe there is something less than unanimity on parity prices or income as the appropriate level from which to measure the surplus. I do not believe Mr. Wells' definition covers one phase of the definition of surplus which has an important place in the thinking of many farmers and farm leaders. They are interested in approaches that will assure "parity" with urban income receivers, and not simply their "accustomed" level of income.

3. The third characteristic of surpluses refers sometimes to the problem of available supplies, and more frequently, to the problem of potential supplies, namely, *over-capacity*, which is, as Mr. Wells points out, the very root of the problem. Here the approach to investigation can rarely be in terms of individual commodities. It must be framed in terms of the entire farm management and regional aspects of the agricultural-urban life in the United States.

Both papers emphasize strongly the need for positive, direct action in meeting the problems suggested by surpluses and inadequate nutrition. I should like to comment briefly on a few phases of the discussions from this point of view.

Mr. Wells discusses increases in national income as a solution to the problem, and points out that food expenditures tend to increase at a slower rate than non-food expenditures with increased income. However, as the recent study of Consumer Expenditure for 1935² indicated, the absolute increases in food expenditure with increased income are substantially larger than for any other consumption expenditure. Moreover, if a larger proportion of the income increase goes to low-income families, the results are extremely effective in widening the demand for agricultural products. Certainly the income approach is probably more effective than any other in meeting our problem. An increase in food expenditures from about 5 cents per meal to about 13 cents apparently takes place as income increases from about \$500 to \$1500 per annum. Mr. Perkins has pointed out that a man with a job is a very much more effective buyer of agricultural products than a public assistance family whom we may be able to aid by increasing present food expenditure by as much as 50 per cent.³ My particular reason for emphasizing that point at this time is that farmers and supporters of direct programs for farmers should probably be more active supporters of other programs, which at shortsight do not appear to be agricultural.

The action programs of the Department of Agriculture directly coping with problems of surpluses and inadequate nutrition, include direct purchase and distribution and the Food Stamp Plan under the Federal Surplus Commodities, phases of the Farm Security program, marketing agreement programs, and others. The possible economic and social significance of

² National Resources Committee, Consumer expenditure in the United States, estimates for 1935-36, United States Government Printing Office, 1939.

³ Milo Perkins, The food stamp plan and the farmer, U.S.D.A., Federal Surplus Commodities Corporation (mimeographed) p. 16, December 4, 1939.

these approaches to low-income people, other than those receiving public assistance, should be considered carefully. The low-income program is being tried experimentally in Shawnee, Oklahoma, in order to provide administrative and economic experience in this approach. Much remains to be done in this field.

With respect to the effect of surplus consumption programs on consumer expenditure, discussed by Dr. Waugh, it is obviously difficult to come to any final conclusions, even if the demand is inelastic. Thus, it is frequently true that we assume that benefits go to a small number of producers and that all consumers have to pay the penalty. The fact may be that the burden is not on all consumers, but on a limited number of consumers who can readily afford the adjustment in their budget that somewhat higher prices may require. Moreover, the size of the price changes at the farmer level may be relatively insignificant, for the consumer level. For example, for citrus the problem for producers may be to secure an improvement of 5 cents to 15 cents per box, a sum which is very small at the consumer level when the units are individual grapefruit or dozen oranges.

Moreover, the results of action programs may be to stabilize prices rather than to change the average considerably. This is certainly one of the results of existing programs for such commodities as potatoes, apples and butter. Since the demand curve for these, expressed in terms of value is probably concave to the base, price stabilization, which means more equitable distribution of the market proceeds among farmers, may in fact decrease total consumer expenditures. There may also be a reduction in marketing charges associated with greater price stability which would also benefit consumers purchasing in the market place.

Finally, I think we should recognize that theoretical analysis sometimes assumes a given condition or system of values, then analyzes the effect of an intrusion, and calculates the incidence of this in terms of the difference between the two hypothetical situations. However, it takes time to make adjustments and this aspect of *time* is important in measuring the economic effects. For example, gradual expansion of the Stamp Plan may result in increasing the demand by increasing the quantity sold at a given price rather than in increasing prices.

A brief word in conclusion, on social cost of direct action programs. The actual "cost" must depend upon how fully our human and material resources are being utilized. It is apparently an extremely difficult job to convince ourselves, not to mention others, that with less than full employment of resources, there is social gain resulting from any worthwhile expenditure. Possibly, there are two approaches more effective in coming to sound and widely accepted conclusions on this score. The first is to consider the alternatives if direct approaches to the problem are not undertaken. The second is, as Wells and Waugh have suggested at the end of their papers, to consider the benefits to the farm and non-farm population through changes in income, employment, fuller utilization of our resources, and nutrition.

DISCUSSION BY HAZEL K. STIEBELING

Bureau of Home Economics

Man needs for his nourishment some three dozen or so chemical substances. His state of nutrition is closely related to the quantities and proportions in which these various essentials occur in his diet. That life may be maintained on different planes of nutritional well-being is apparent both from clinical and laboratory studies of human beings, and from laboratory work with animals that have metabolic processes similar to those of man.

If there is a continued shortage of any one dietary essential, abnormalities or disease will appear, sooner or later. Many families in this country suffer from manifest nutritional diseases. Dr. Sebrell of the U. S. Public Health Service estimates that there were 100,000 cases of pellagra in 1937. Doctors in many parts of the country, report occasional cases of other deficiency diseases. Among these are nutritional nightblindness, because of insufficient vitamin A; beriberi, which follows a severe shortage of vitamin B₁; scurvy, caused by the lack of sufficient vitamin C; nutritional edema subsequent to insufficient quantity of protein of good quality, and nutritional anemia, reflecting shortage of iron in available form. Recently a new deficiency disease, ariboflavinosis, following a shortage of riboflavin (a part of the vitamin B complex) has been identified. Besides there still is rickets among too many children, and almost everywhere dental caries, which in part at least is a nutritional problem.

Chronic cases of pellagra, scurvy, and other deficiency diseases, may not be severe enough to cause death, perhaps not even severe enough to keep the patient in bed; nevertheless they are a definite liability to working efficiency, they lower the body's resistance to infection and they reduce human happiness to a low ebb.

Another plane of nutritional well-being is represented by a level that just covers the minimum for maintenance. For a number (but not all) of the nutritive elements we now know approximately the average quantities needed to cover the minimum needs of the human body. In dietary studies, we rate as poor all diets that fail to provide this average minimum for one or more essentials. That our dividing line has some significance is indicated by these sets of facts: Our dietary studies show that there are proportionally fewer families with food that is poor from the nutritional viewpoint, in the upper economic groups than in the lower. Other studies in this country and abroad show that children of the upper economic groups tend to be bigger at every age than those in the lower economic groups, and also that morbidity rates are lower among the more well-to-do. Our studies show that relatively fewer of the families on farms in each part of the country have poor diets than in cities, and relatively more of those in villages have poor diets than in cities or on farms. According to a study of the Public Health Service in one State, mortality and morbidity rates are lowest in the open country and highest in villages.

The statements of the preceding paragraph are not intended to imply causal relationships. Food is but one of many factors affecting human well-

being and its good or ill effects are often partially overshadowed by other circumstances. Nevertheless there probably is a connection between the various sets of facts. We know that food is the stuff out of which bodies are built, and it is generally accepted that natural resistance to disease—not resistance acquired—is dependent upon and varies with the nutritional state of the body. It may well be that for every person with an outright deficiency disease, there are scores, perhaps hundreds, that are not as fit physically as they should be, and do not have as much natural resistance to disease as they might have, because of poor diet.

Some diets are poor because of poverty, some because of poor food habits. Occasionally a deficiency disease occurs when the diet itself would not be considered poor by ordinary standards. This may happen if an individual's requirements are considerably higher than average. If absorption is poor or if infections are present, the apparent requirements for certain nutrients are increased.

There is, however, a positive side as well as a negative one to this matter of nutrition—good nutrition can improve the average, just as poor nutrition lowers the average level of living.

Long-time studies with small animals in which heredity and environmental factors can be controlled, demonstrate not only that defective diets lead to early signs of senility, other signs of poor health, or deformities; they also demonstrate that careful attention to all the now known principles of nutrition can lead to excellent vigor and vitality at all stages of development. Indeed, Sherman and his coworkers have found that diets already adequate to support a fully average level of nutrition and health, can be measurably improved to the benefit of the body. They estimate that by applying our present knowledge of nutrition to human life, a life span averaging 70 years could probably be increased to an average of 77, without further discoveries in this field. While longevity is not to be desired unless it can be accompanied by a high level of vigor, a prolongation of the prime of life, to this also, better-than-average nutrition can contribute. Carefully controlled investigations indicate that increased physical efficiency, greater natural resistance to disease and a prolongation of the prime of life with a higher level of vitality at every stage of development would follow a general application of our newer knowledge of nutrition.

It is worth the cost, and to what extent could surplus crops or surplus acres contribute to the attainment of a goal of optimal nutrition for all?

The net effect of the distribution of our current surpluses of foods upon the nutritive value of the diet of any family or group of families depends on two sets of factors:

1. It depends on the assortment of the foods that are in surplus, the quantities of each distributed and the period over which such distribution continues. During the last year, for example, grain products of several varieties and butter have been on the surplus list. These alone could add to the calorie, protein, and vitamin A content of the diets of the poor. If in addition to these products milk in some form is distributed free, such diets could also be measurably improved in their calcium content—a much needed improvement. If meat rather than milk should chance to be on the

list, the net effect would be in other directions; if leafy vegetables and vitamin C-rich fruits are on the list, the answers would be still different.

2. The effect of surplus food distribution on diet improvement depends also on character of the usual diet of the recipients, and the influence of surplus food distribution on their spending habits. In some households and of some commodities the products obtained free as surplus apparently are and can be consumed as net increases to amounts customarily purchased. This appears to be true for certain fruits, milk in some forms, and to a lesser degree for butter and eggs. For some other foods this is not the case. Usual purchases of surplus products may be reduced somewhat (maintaining, nevertheless, some increase in total consumption) and the money thus released is spent for other food or other items, needed for current living. This appears to be the case for some of the grain products, and perhaps for some other surplus items.

The greatest net improvement in the nutrition of our population would result if agricultural surpluses were not in those articles of food which low income families now purchase in quantities almost equal to average purchases (grain products, fats other than butter, sugar, potatoes, dry mature beans) but in those articles—the protective foods—milk, green leafy vegetables, certain fruits—especially needed to compensate for usual defects in the diets of the poor. When food must be selected chiefly with a view to obtaining the most in the way of hunger alleviation for the least money, the resulting diets seldom satisfy the “hidden hungers.” These must be met also if health and vigor are to be maintained. If all of the surplus acres could be devoted to those “protective foods” needed by the less favored sections of the population, and if a means could be developed for matching current nutritional deficits with such surpluses, we would make great strides toward our national goal of conserving our human resources.

DISCUSSION BY GEORGE J. STIGLER

University of Minnesota

It is hardly possible, in the time available, to cover the whole range of problems raised in Mr. Wells' stimulating paper, so I shall restrict myself to comments on three points.

First, with all humility proper to my limited knowledge of the subject, I question the desirability of complete acceptance of the so-called minimum diets of the professional dieticians, at least as an immediate goal. For this reluctance I advance several reasons. Their discipline is not yet so mature as to make their present findings definitive. We may reasonably expect future changes in diet requirements, and discoveries of new and cheaper methods of meeting these requirements. Nor would the dieticians be unusual if, like others who seek to reform with public funds, they overstate somewhat their case. Frequently we hear that perhaps half of our population is in some respect inadequately fed. This may be true, but it is scarcely relevant: our immediate program should be the much more modest one of meeting the greatest of existing nutritional deficits.

Second, I would place more emphasis than Mr. Wells does on the education of consumers. He finds the process slow. I should consider the slowness of the educational process to be a positive advantage. And it possesses additional advantages: it is economical; it achieves that desirable flexibility in diets emphasized by Mr. Waugh; and, if the point is not too academic, it is democratic.

Third, we should examine all the alternatives which may be used to improve diets, and especial attention should be devoted to the costs and efficiency of each alternative. The Food Stamp Plan seems to be preempting the field at present, but its superiority has scarcely been demonstrated (if it can be demonstrated). The alternative policies have some important claims to consideration; among them I would list (to repeat) education of consumers, less regressive taxation, subsidizing housing, and elimination of monopoly elements in the prices of food stuffs, particularly in the case of dairy products.

In closing, I would like to make two statements of position. Correction of nutritional deficits will not eliminate our agricultural problem, and I venture that the proponents of adequate diet will do their cause a disservice if they link it too closely with the program for eliminating agricultural surpluses. Finally, I can find no economic justification for the popular definition of surpluses in terms of standards of living of farmers. Such definitions seem to offer little more than a crude statistical definition of feudalism.

NEW DEVELOPMENTS IN AGRICULTURAL SAMPLING

ARNOLD J. KING AND GLENN D. SIMPSON¹

Agricultural Marketing Service and Iowa State College

For many years the Crop Reporting Board of the USDA² has been making estimates of crop acreages, crop production, yield, livestock numbers, and other items of importance to the agricultural industry of the United States. For the most part, these estimates have been established upon a State basis. The principal sampling technique has been the use of inquiries sent to farmers directly by mail or distributed to farmers by the rural mail carriers. The U. S. Bureau of the Census serves as a bench mark upon which the sample indications are expanded to an estimate.

With the advent of the crop adjustment programs more nearly accurate acreage estimates were requested for specified crops both by states and counties. The adjustment programs were established with the county as the administrative unit, and the need for county acreage estimates immediately became important. The major problem brought about by this change was whether reliable county estimates could be made by using samples that had been designed to make only state estimates. The accuracy of such estimates is of paramount importance, since they are the basis for county acreage allotments, development of succeeding programs, and compliance with present programs.

The development of agricultural adjustment programs by the USDA has created a new body of crop acreage data based on aerial photographs. The data, collected in practically every county in the United States, in most cases cover only farms participating in the agricultural programs. At the present time the majority of the agricultural regions of the United States have either been mapped from the air or are under contract for aerial mapping. With such a large quantity of objective data being collected each year, questions have arisen that need answering; for example, can the AAA data, as now gathered, be used as a basis for improving the accuracy of the county

¹ The clerical work was provided by the WPA for the City of New York; the authors are indebted to Mr. Clarence Caparoon for his assistance in obtaining the data which form the basis for this investigation and his assistance in getting the analysis underway, to Miss Catherine Senf for her assistance in the bias study, and to all members of the statistical laboratory at Iowa State College for statistical advice, and especially to Professor G. W. Snedecor for his helpful criticism. The field classification of crops upon aerial photographs for use in this study was done by the AAA.

² The Crop Reporting Board is now a part of the newly created Agricultural Marketing Service. For a number of years prior to July 1, 1939, it was attached to the BAE.

estimates of crop acreages? Can the aerial photographs and the AAA personnel be utilized to improve the estimates without endangering efficient administration of the agricultural program?

Objectives

With these questions in mind a research program having the following objectives was inaugurated in 1937: (1) To test the reliability of the sampling data being collected for making county estimates of crop acreages as well as the validity of the methods employed for expanding the sample indications to an estimate. (2) To test the validity of using AAA data based upon aerial photographs to make county estimates of crop acreages. (3) To test the validity of new methods of sampling based upon aerial photographs that might be devised to make county estimates of crop acreages.

Procedure

The nature of the problem made it desirable to have accurate and complete crop acreage data for at least a few counties to use as a basis for the research program. In order to reflect the various conditions existing in the whole agricultural area the counties selected for the investigation were chosen to be as representative as possible of the total farming area. An arrangement was made with the AAA to obtain a complete record of the crop acreages for every field and every farm in nineteen counties. The counties selected were well scattered over the North Central region of the United States. A summary of the nineteen counties shows a total of 31,000 farms that were participating in the AAA program and 24,000 non-participating farms. The total land in farms was approximately seven million acres.

The data were obtained in the following manner. A special set of photographs was secured for each county for the purpose of this investigation. A representative of the AAA visited each farm and identified on the photographs the crops grown on each field. The boundaries of the fields and the farms were outlined on the photographs. The area of each field was obtained later in the AAA county offices from the aerial photographs by planimetering the field boundaries. The area of each field was entered on the aerial photographs. A special form used to record the acreage in each farm was filled out by the AAA in the county office. The form carried the names of the owner and operator of each farm, as well as a statement as to whether they were or were not participating in the program. After completion of the field work the data were transmitted to New York City, where the analysis was done with the aid of the workers furnished by the WPA.

No doubt many individuals unfamiliar with the aerial photo-

graphs may question the accuracy of acreage determined by use of aerial photographs as compared with acreage determined from ground measurements of fields by means of tape and transit. The AAA has conducted a study on this point in which an attempt was made to check the accuracy of photographic enlargements and planimetry. In the study six counties in the State of Missouri were selected and the land therein classified topographically as (1) smooth, (2) rolling, and (3) rough. Twenty-five fields were selected at random and measured independently by a ground crew using tape and transit and by means of planimetry on the aerial photographs. The results of this study were as follows: "That the total average error in planimetered field acreages under smooth topographic conditions was 0.53%, under rolling 0.63%, and under rough 0.78%."³

In addition to errors in the planimetered measurements, errors in crop identification can occur. However, the AAA field forces are mostly farmers who are familiar with crop terminology and are experienced in field enumeration. Therefore, it can be assumed that the identification of the crop was fairly accurate.

An Appraisal of Present Methods of Estimation

An analysis of the acreage data now being obtained by the AMS was made and compared with the facts determined from the special data secured in the nineteen counties. Thus, the various sources of error in the AMS estimate were isolated and assessed. The objectives of this kind of analysis are threefold. The analysis gives (1) a basis for obtaining an estimate of the accuracy of present methods as well as estimates of accuracy of alternative methods of sampling and estimation, (2) information as to the effectiveness of the methods now being employed to control each kind of error and also gives an indication as to the possibilities of using alternative methods of controlling the different kinds of error, and (3) information as to the efficiency of alternative methods; that is, whether too much or too little of the resources are being utilized in controlling any of the kinds of errors that form a part of the error of estimate.

By comparing the means of repeated samples with the population mean it was possible to measure in terms of probabilities the extent that random sampling error or the sampling variation enters into the error of estimate. These probabilities⁴ were established for 3 per cent, 5 per cent, and 10 per cent size samples. Out

³ H. N. Scholer, Ass't Director, North Central Division, AAA. Accuracy report on 1937 enlargements. Unpublished.

⁴ The percentages of the means from repeated samples that fall within specified limits of error.

of 175 county crop acreages studied, it was necessary in 155 cases to obtain at least a 10 per cent sample to have 95 per cent of the means fall within a 10 per cent error. In a large percentage of the cases when a county had less than 10,000 acres in a crop, it was found that at least a 40 per cent sample was required to estimate the crop with the same degree of accuracy. The AMS takes advantage of any regression that may exist from year to year in the same farms either by comparing the ratios of independent samples taken each year or by obtaining a percentage change in acreage as indicated by the farms that report for two years in succession. In spite of the pairing, it is doubtful if a three per cent sample, which is about the average size sample obtained by the AMS, is of sufficient size to reasonably assure serviceable accuracy. If steps are taken to reduce the sampling variation to meet present day demands, it appears that either larger samples will have to be obtained or new methods for controlling the variation will have to be developed.

By comparing the individual reports received by the AMS with the data from the aerial photographs in the nineteen counties it was possible to measure the bias that exists in the acreage samples obtained by the AMS. That is (1) whether the farmers who voluntarily reported were a select group of farmers or (2) whether there were errors in the reports due to incorrect crop classifications and (3) whether there were errors in the reports due to incorrect statements as to the size of the fields. It was found that bias did exist in the AMS data but that the bias differed in magnitude and direction from county to county and from year to year. It was therefore concluded, (1) that the importance of bias will probably be reduced as the size of the population is increased, but (2) that regression in time, which is the method now used for correcting for bias, is not altogether a satisfactory method, especially for use in making county estimates. Probably the most precise method for estimating the direction and magnitude of the bias would be to spot check a small number of the reports and also to develop a method of selecting the farms that would assure randomness.

In addition to the sampling variation and errors due to bias there are errors traceable to the use of the farm as a sampling unit. The AMS has found that if a farm is used as a sampling unit the best indication of the changes in crop acreages is obtained by dividing the crop acreages by the total land in the sample to obtain a crop ratio. This ratio is then used in a regression to estimate the current crop acreage. This method of expanding a sample indication to an estimate does not take into account year to year changes

in total land in farms. To correct the present indication for such changes it would be necessary to obtain a sample which is designed specifically for this purpose. It seems that the most practicable way to get around the error arising from present methods of expansion would be to develop a new kind of sampling unit that remains fixed from year to year, such as a section of land.

It became apparent after analyzing the errors in present methods of sampling and estimation that the methods developed for making state estimates have many inherent weaknesses when used for making county estimates. A valid question may be raised whether it might not be more economical to develop new methods of sampling for the latter purpose rather than to attempt to improve the accuracy of the present samples by increasing the size of the sample and by the development of additional controls.

Farm Program Data as a Basis for County Estimates

The acreage data collected by the AAA are, in most counties, confined to the farms that participate in the AAA programs. The results of an investigation in the nineteen counties indicated that the farms participating in the program are a highly selective group when considered as a sample to be used to measure the year to year change in crop acreage for all farms. For some crops there was a strong tendency for the non-participating farms to have year to year acreage changes that were exactly opposite from those of the participating farms. In addition to selectivity there were other objections to using AAA data as a basis for making county estimates. The AAA has not classified all crops and in spite of a single set of instructions and crop definitions there are inconsistencies in the classifications from county to county. Since the basis for crop payments have changed from year to year there have been yearly changes in farm and crop definitions resulting in data that are not comparable.

An examination of the differences as shown in the following table between acreage reports submitted by the farmers to state assessors and acreage data obtained by the AAA reveals in the case of barley and oats in all five counties studied that the assessor's acreage is above that of the AAA. This difference ranges from 9.0 per cent in Nemaha County to 22.1 per cent in Harlan County. A similar comparison between the AAA data and farmers' reports submitted to the AMS reveals a like discrepancy. In all five counties the differences in most cases were caused by the fact that the farmers reported to the AMS and the assessors after the crop was harvested. For this reason many fields of oats and barley were reported as

cut for grain while the AAA had classified these same fields earlier as summer fallow, or idle. If the instructions were followed, there was no apparent reason for the inconsistency among the three surveys. There was no evidence of inaccurate classification in other crops. Because of the selectivity of participating farms, possibility of errors in classification, and inconsistencies in definition of farms and crops from year to year and county to county resulting in data that are not comparable it was concluded that the AAA data collected in 1937 would be of little help in improving the county estimates of crop acreage.

SUMMARY OF DIFFERENCES BETWEEN MATCHED FARMS
(Aerial Photo—NCR-130 vs. Assessors' Farm Reports)

Item	County	Mean Difference Per Farm Reporting			Total Mean Difference as percentage of Ave. Per Farm Reporting the Crop on Photo	Percentage of Farms Reporting on Aerial Photos
		Where Both Report	Omissions on One Report	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Oats	Washington, Ind.	— .489*	+ 2.925**	+ .406	+ 4.6	30.4
	Wayne, Ind.	+ .386	+ 5.904**	+ 2.417**	+ 18.7	35.5
	Harlan, Neb.	+ .277	+ 10.912**	+ 3.716**	+ 22.1	46.9
	Nemaha, Neb.	+ .908**	+ 7.915**	+ 1.609**	+ 9.0	71.1
	Brookings, S. D.	+ 2.455**	+ 34.437**	+ 4.863**	+ 10.2	91.2
Barley	Harlan, Neb.	— .098	+ 10.347**	+ 2.357**	+ 11.6	29.1
	Brookings, S. D.	+ 1.352**	+ 22.043**	+ 4.043**	+ 11.7	70.1

* Probability less than .05.

** Probability less than .01.

New Sampling Techniques

In exploring the possibilities of developing new methods of sampling, one of the first considerations was the development of a sampling unit (other than a farm) which does not change in size and whose numbers are constant from year to year. The second consideration was whether the sample could be made objective—objective from the standpoint of sample selection and also from the standpoint of measuring the crop acreages in each sampling unit. The third consideration was whether the sampling unit was of the proper shape and size to insure maximum sampling efficiency. It appears that the aerial photographs afford a basis for developing a scheme of sampling which will fulfill all these requirements.

*Study of Sampling Units Made Possible by Use of
Aerial Photographs*

A study was inaugurated to determine the kind of sampling unit and methods of control which would likely give the greatest precision. A single section, a four-section block, a sixteen-section block, and a thirty-six-section block, as well as long narrow units composed of different groupings of sections were investigated for statistical efficiency. In addition to studying the efficiency of the different kinds of units that might be employed to reduce the sampling variation other methods of control such as stratifying, pairing, and sub-sampling were investigated for their effectiveness.

The efficiency of the different kinds of units and different methods of selecting the units was determined by calculating the number of sampling units required to obtain a specified probability (percentages of the means from repeated samples that fall within specified limits of error). It was possible to calculate this type of probability because the parameters were known. That is, any probabilities from 1 to 100 for any size sample can be derived from the following formula if the standard deviation of the population is known: $(\sigma/\sqrt{n})\sqrt{N-n/n-1} \cdot t$, where the σ is the standard deviation in the population, " n " the number of units in the sample " N " the number of sampling units in the population, and " t " the appropriate constant taken from the t table. This formula differs from the usual expression, $\sigma/\sqrt{n} \cdot t$, by the factor $\sqrt{N-n/n-1}$, which corrects for a finite population.

In nine counties the 95 and 99 per cent probability limits were calculated for a single section, four-section blocks, and townships as sampling units. In two counties the probability limits were calculated for long narrow units. It was found that in the aggregate the square unit was more efficient than a long narrow unit, although in a few cases where there was a well defined gradient in the crop ratios, the long narrow unit was more efficient than the square unit provided the long narrow unit did not transect the gradient. In comparing the probability limits of the square units, it was found that, on the average, a sample of ten single sections selected at random gave about the same probability limits as did five four-section blocks (20 sections in all) selected at random and about the same as three townships (108 sections in all) selected at random.

The use of the geographic sampling unit implies a field enumerating procedure. If several sections are grouped into a sampling unit it is obvious that the amount of travel would be less than if the sections were chosen at random. But as the size of the unit is increased and the number of units is thereby decreased, the pre-

cision is reduced. If cost is taken into consideration, it is not sufficient to consider merely sampling variation. The cost per unit must be used to calculate efficiency. However, if the field work were carried on by the AAA in conjunction with their regular program activities, there is little doubt that the single section would be the most efficient unit.

In a few states and in some parts of several other states the land has not been surveyed on a sectional basis. In these areas it would be necessary to develop some unit other than the section or multiple of sections. If the aerial photographs were used, it would be possible to outline on the photographs sampling units that were approximately the same size and shape as a section. The area within the units, as well as size of the fields and parts of the fields falling within the sampling unit, could then be obtained by planimetry. Since the fields in these areas are irregular in shape, it is probably best to let the boundaries of the units fall, wherever possible, along stationary objects, such as railroads, highways, and fences. If the units are not designed on a sectional basis, precaution must be taken to prevent bias resulting from a consistent exclusion or inclusion of non-cropped land in the sampling units.

For each sampling unit, stratification, as a method of controlling random sampling variation, was studied. The kinds of strata investigated were four-section blocks, sixteen-section blocks, and thirty-six-section blocks. It was found that geographic stratification in every case increased the precision of the sample. In all cases the smaller the strata the more effective the control. That is, it was found that a four-section block removed a greater amount of the variability from the sampling error than did sixteen-section blocks, and sixteen-section blocks in turn removed more variability than thirty-six-section blocks.

It must not be overlooked that (1) to take full advantage of geographic stratification the strata must be of such size and shape that the variability among strata is maximized and (2) the number of units in each stratum are known so that a weighted mean based on the total can be obtained. If the weights are inaccurate or the variability among strata is not maximized, the gain due to stratification is reduced. The aerial photographs afford a basis for taking full advantage of geographic stratification because the sections can be grouped into strata of any size or shape that will maximize the variability among strata. Where strata have been so defined, the weights used for combining the means would be without error because the number of sections in each stratum are known.

It was found that the number of sampling units needed to estimate crop acreage within specified probability limits varied widely

by crops and by counties. It was soon noticed that the larger the number of acres of a crop in a county the smaller the probability limits. If the probabilities were corrected for size of crop it was found that the variance from county to county did not differ greatly. It therefore, was concluded that if the crop acreage could be roughly approximated the probabilities calculated in the nineteen counties could then be used to calculate the number of samples needed to ensure a given degree of accuracy.

If a section or a group of sections is used as the sampling unit, the expansion factor is determined without error. Since the number of the sections in the county, which is easily obtained from plat maps, remains constant from year to year, the sample indication can be directly expanded to an estimate by multiplying the crop acres per section by the number of sections in the county.

In conclusion, it is found that geographic sampling units based upon aerial photographs will likely increase the accuracy of the estimates of crop acreage because (1) the sample can be made objective—objective from the standpoint of sample selection and also from the standpoint of measuring the crop acreage in each sampling unit—and therefore practically free of bias, (2) the sampling variation can be reduced by stratification, (3) the sample indication can be expanded to an estimate without an expansion error because the number of units is known. In addition to increasing the accuracy of the estimates the objective sample can be made to give valuable information such as the per cent of farms participating in the AAA programs. Information about the non-participating farms could readily be obtained. This would be of great value to the AAA in planning their programs.

AGRICULTURAL CENSUS OF 1940

WARDER B. JENKINS
Bureau of the Census

Legislative provision for the 1940 Census of Agriculture was made in 1929 as a part of The Act Providing for the Fifteenth Census. In part, that Act provided for a decennial census of population and of agriculture to be taken in 1930 and every ten years thereafter as of the first day of April. A serious effort on the part of persons interested in agriculture to change the date for the coming census to January 1 or possibly to a date in the closing months of 1939 were unsuccessful. It may be of interest to note that this same Act contains a provision for continuing the quinquennial census of agriculture which is taken as of January 1 in every tenth year, or in those years ending in five.

The Director of the Census has the legal authorization to determine, with the approval of the Secretary of Commerce, the number, form, and subdivision of the inquiries in the schedules. If Census facts are to serve adequately as administrative tools in the carrying out of social and economic programs, every suggested inquiry from whatever source must be given serious consideration. Likewise, every schedule must be planned to secure the maximum of useful data and at the same time the trouble to the respondents and the expense to the Government must be given consideration. To attain these ends the Director not only has the aid of members of his permanent staff but also seeks the advice and constructive criticism of special advisory committees and of experts outside his own organization. The reports and recommendations of the special advisory committees are referred to the General Census Advisory Committee which, since 1937, has been appointed by the American Statistical Association to advise the Director of the Census on all phases of Census work.

Early in 1937 a special advisory committee, made up of representatives of the USDA, Central Statistical Board, and the Bureau of the Census, drafted the schedule form which was tried out in the field, on a very limited scale, at the beginning of 1938. The State Statisticians of the USDA performed nearly all of the actual enumeration and forwarded the schedules to the Census Bureau for tabulation and analysis. The Statisticians made written reports on all items of interest connected with the enumeration. These reports included comments on the wording and arrangement of questions, on the time required for filling out a schedule, the reaction of farmers to certain questions, the relative accuracy of

replies obtained, and other pertinent facts relating to enumeration problems. The comments were carefully studied and indexed for later use in the preparation of the 1940 schedule.

The Special Census Advisory Committee for preparing the 1940 Farm and Ranch Schedule was designated by the Honorable Daniel C. Roper, former Secretary of Commerce. This Committee, composed of representatives of farm organizations, agricultural publishers, and Government agencies, was formed early in 1939 with Dr. S. H. DeVault, the representative of The American Farm Economic Association, as Chairman. The first meeting of the Committee was held on February 13 and 14, 1939, and several other meetings of the full Committee were held during the next few months. A Subcommittee, composed of the Chairman and members located in Washington, met frequently during this time and, with the assistance of representatives of the USDA and of the Bureau of the Census, did much of the spade work in preparing and arranging the questions.

All suggestions and criticisms received by the Bureau of the Census had been catalogued and filed. These, as well as the comments of State Statisticians on the 1938 Trial Census, were given careful consideration by the Committee. Mr. W. F. Callander, Department of Agriculture, acted as clearing house for channeling in the recommendations of that Department, and Mr. Ole A. Negaard, Central Statistical Board, acted in the same capacity for the other Government agencies. Both the full Committee and the Subcommittee made themselves available to all individuals desiring personal appearances.

Attention was given not only to the make-up of the schedule but also to the preparation of instructions to enumerators. A few suggestions for publication of the data were also made. This Committee's drafts of the Farm and Ranch Schedule, of the Plantation Schedule, and of Instructions to Enumerators, with a few changes, were referred to the General Advisory Committee for further study. Only a few relatively minor changes were necessitated by the recommendations of the General Committee. Seven drafts of the Farm and Ranch Schedule were prepared and carefully considered before a copy was sent forth for printing.

Discussion of the Schedule

We shall now proceed with the make-up of the general schedule, one of which is required for every tract or enterprise defined as a farm. In preparing the various drafts, considerable attention was given to the psychological effect of asking a question which might

be detrimental to the replies for all succeeding ones. Questions which fall into this general category can be divided into two sub-groups. In the first group are those which seemingly pry into what the farmer thinks of as his private business. In the second group are those for which the farmer has only a vague idea of the correct answer and for which he is urged by the enumerator to make a guess without any attempt on the part of the latter to assist him in arriving at a fairly close approximation. The Federal-State Statisticians, who took part in the 1938 Trial Enumeration, commented freely and adversely on both of these types of questions. A number of proposed inquiries of these types have been eliminated.

Some criticism has been made that the schedule is too incomplete as it does not give a bookkeeping record of all the expense and income items for farms or for the operators of farms. Criticism comes from other sources that the schedule is too lengthy. Let me quote from the report of the Special Census Advisory Committee to the Secretary of Commerce: "The Committee would strongly recommend that every effort be made to secure authority and funds for the inauguration of an annual partial or sample census of agriculture. We have included in our draft of the agricultural schedule more questions of an economic nature than usual. This has been done because of the great efforts which are being made by the Government to improve the economic condition of the farmer, for the intelligent planning of which more detailed information relative to tenure, income, etc. is badly needed. We believe that, with such a system in effect, a great deal of the economic information which the Census Bureau has attempted to secure in the quinquennial and decennial censuses of agriculture could be obtained in a manner more satisfactory to those students of agricultural economics who are engaged in studying the agricultural situation and in planning for its betterment. The Committee believes that, if such a system of annual partial or sample census of agriculture could be inaugurated in cooperation with the USDA, it might eventually replace the quinquennial census and simplify the agricultural schedule for the decennial census." It has not been my purpose to set forth the Committee's plea for the inauguration of an annual farm census, but rather to point out that it was fully cognizant of the need for keeping out annoying questions and for curtailing the number of inquiries.

Additional thought was given to the arrangement or order in which the questions were to appear. The arrangement finally decided upon is not completely in accord with the natural sequence an alert enumerator would follow in eliciting the information from the farmer. In this connection, ease of editing and the facility of

transferring data to punch cards were taken into account. Because of this somewhat unnatural sequence, a note appears in Section III of the schedule suggesting to the enumerator that, after he has ascertained the total acres in the farm, he may find it helpful to fill in the reverse side of the schedule relating to crops and livestock before proceeding with the questions concerning land utilization, values, mortgage debt, farm expenditures, etc.

Regionalization.—A regionalized schedule was used in the Trial Census of 1938, but a somewhat different form has been adopted for 1940 after seeing the feasibility of using modified schedules. Nine regional forms of the general schedule will be used. The face and the first column of the reverse, relating to livestock, are standard for all areas. Only the crop section then varies from region to region. This regionalization plan permits the inclusion of more locally grown crops in each region without increasing the total number of crop questions for any particular area. It obviates the use of supplemental schedules, such as those used in 1930 to enumerate fruits and nuts peculiar to certain areas or States. It is thought that a schedule of this type will be better received by farmers than would a universal schedule where, for example, the acreage and production of cotton would be included for use in Maine. Proponents of a regionalized schedule will concede that an enumerator in Maine would not ask his respondents the cotton question even if it were included on the schedule used for that State; hence, a part of the saving by using a regionalized form may be more apparent than real.

A glance at the schedule for any of the nine regions shows that the last question carries the number 232. This does not mean that this number of questions is contained on each schedule. Another quick glance at the running note at the top of the reverse side or at the individual crop questions will show that there are omitted inquiry numbers which represent crops infrequently grown in that general area. Several catch-all or residual questions are provided on each regional form to assure a place for reporting any of these infrequently grown crops. The actual number of questions varies from 170 in Region 2 (Kentucky, Missouri, North Carolina, Tennessee, and Virginia) to 188 in Region 9 (Arizona and California).

Another very important use of a regionalized schedule is that it permits a change in the production units to conform as closely as possible to those in general use in the respective area. Thus, in California certain fruits are to be reported in tons, while in Florida similar fruits are to be reported in field boxes. This plan provides a method of reporting the citrus production in California from the bloom of 1938 and in Florida from the bloom of 1939. Still another

limited use is the possibility of securing production by some varietal feature, e.g., a separation of peaches into clingstone and freestone for California.

Value-of-products questions.—Perhaps the most difficult single problem which was faced by those responsible for preparing the 1940 schedule was to determine whether value-of-products or income questions should be carried and, if carried, in what form. Because of the added cost of carrying such inquiries and because of the material slowing up of the work when such inquiries are carried, the inclusion of income questions was made only after repeated, widespread demands for them.

Various plans were considered for obtaining the information on income. A check plan whereby the operator would be asked whether the income from certain of his farm operations fell within defined limits as, for example, \$250 to \$400 was discarded mainly because of the impossibility of getting a total for the farm, thus failing to satisfy the needs of the users. The plan, as used in 1930, of segregating all the income questions in one section of the schedule was supplanted by using more inquiries and interspersing them among the production inquiries following the particular sections to which they apply. For example, the income question for poultry immediately follows the inventory and production items for that important segment of farming operations. The new plan or procedure, it is believed, will lend itself to more accurate reporting, to a greater ease in checking or editing, and to providing more detailed and valuable information.

Farm labor.—Next to the income inquiries, those for farm labor proved the most troublesome. Here it was largely a problem of formulating questions which would measure the seasonal labor requirements by type of labor, although the requests for labor information did not stop here. After extended conferences and hearings conducted by the Special Advisory Committee and by the Central Statistical Board and after further consideration by the General Advisory Committee, the set of questions included in the final draft of the schedule was drawn up. These questions are not—everyone seems to admit—wholly satisfactory, but the schedule makers believe they represent the limit to which the agriculture schedule can be used to furnish data on farm labor.

Irrigation.—None of the plans heretofore used by the Census to make a separate tabulation of irrigated and nonirrigated crops have proved satisfactory. The regionalized plan of the schedule makes it possible to carry an additional column in the crop section for the irrigated acreage of the individual crops in the same 19 States for which irrigated crops were secured in the 1930 Census.

However, a separation is not being secured for the irrigated acreage of vegetables raised for sale, horticultural specialties, or small fruits. Three universal questions relating to irrigation are carried on the face of the schedule—the first on land from which irrigated crops were harvested in 1939, the second on land irrigated in 1939 and used only for grazing or pasture, and the third on irrigation enterprise supplying water.

Supplemental information.—In the process of editing schedules, many of the entries do not appear reasonable—some being very large, others being unusual for the particular community. Some of these entries represent good enumeration, while others are in error. The schedule now carries a block, about two-thirds of a column in length, entitled "Supplemental Information." In this column the enumerator is to report anything unusual, such as a change in the area of the farm or in the tenure of the operator since the last crop season. He is to clarify any unusual entries, such as high or low crop yields, values, or acreages. He is to report on anything unusual as to ownership and location of livestock and give information on new crops. The acreage in tilled summer fallow and the acreage in soil improvement crops must be given. Another part of this block actually serves as a work sheet. A recording is required of the names and acreages of the crops which failed. If any of the acreage was replanted, that fact must also be given. Crops which succeeded one another for harvest in the same year and crops which were interplanted must be reported. This information will not be tabulated, but it will serve as an aid in understanding the entries on the schedule and will be available for later tabulation if anyone cares to pay for assembling the data.

Another type of supplemental information is provided for. In a number of the inclusive crop questions the enumerator must underline or enter the name of the particular crop grown; for example, under Question 116, which is an inclusive question covering annual legume hay, some annual legumes are listed and the enumerator is asked to underline which was cut for hay.

Enumeration control.—Most enumerators in rural areas will receive maps of their enumeration districts on which will be indicated by dots or other symbols the general location of dwellings, churches, schools, etc. The enumerators will be required to keep a record of all places visited by placing on the map beside each dot the household visitation number which they must also enter on the Population Schedule. The numbers of those households on farms must in turn be transferred to Farm and Ranch Schedules. The enumerator is required to enter separately on the latter the visitation number for the farm operator's household and for all other households on

the farm. Enumerators in rural territory whose maps do not have dots and symbols showing the location of dwelling houses are to make their own dots on their maps as they proceed with the enumeration.

This general plan will make it possible to check the schedules against the maps to see whether complete coverage has been obtained and will also serve in a manner as a farm identification. In the instructions to enumerators a suggestion is given that the enumerator will find it helpful to outline on his map the boundaries of the farms visited. Still another helpful hint, looking forward to complete coverage, is that he should inquire at each farm as to all adjoining lands.

Other changes.—Numerous other changes and improvements are embodied in the general schedule. Some of these, in the order in which they appear on the schedule, are: Whether the operator resides on his farm; whether the landlord is a corporation; additional facts as to what the landlord furnishes as his share in the operation of the farm; the value of the owned portion of part-owner farms; the contract rate of interest on the first mortgage debt; a new method of obtaining the real-estate and personal property taxes; whether the farm operator owns additional farm land and, if so, how many acres are rented to others; the separation of off-farm work into farm and nonfarm work and a more complete classification as to the nonfarm occupation; the fact of transacting business with or through a cooperative selling, buying, or service organization rather than obtaining the dollar volume of business; additional expenditure questions for items which bulk large in the farmer's total outlay; the year of latest model of automobiles, motor trucks, and tractors; the elimination of young animals from the inventories; the inclusion of a question on goats milked; information on beekeeping and honey production; and two questions on fur animals kept in captivity.

Some of the proposed questions relating to the home and to home conveniences were dropped as they are to be carried as a part of the Housing Schedule.

Plantation schedule.—Because of the insistence by some that "cropper" operations are not true farms, even in the face of the fact that croppers in some States are legally defined as "tenants," the schedule makers gave considerable thought to the problem of reporting cropper operations. The plan followed in the past of having a Farm and Ranch Schedule for each cropper tract will be continued in the coming census. However, to make possible a statistical treatment of the entire plantation operation as a unit and to avoid the danger of duplications and omissions in the returns for

animals, crops, and expenditures, a supplementary schedule entitled "Plantation (Multiple-Farm Unit) Schedule" has been provided for use in the Southern States and in a few other areas where cotton production is important. It is emphasized that this schedule form does not replace the Farm and Ranch Schedule but only supplements it.

A plantation has been defined as: "... a continuous tract or closely adjacent tracts of land on which five or more farm families (including at least one cropper or tenant family) are regularly employed, and which tracts are operated as a single working unit in respect to a central farm headquarters and to the control of labor, cropping systems, and farming operations. Thus, a plantation should include all the land worked from a central farm headquarters with croppers, wage labor, or the operator's family labor, plus any additional land worked by share or other tenants that may be part of the operation of the unit or plantation as a whole."

The other subjects to be covered by the 1940 Agricultural Census are irrigation and drainage enterprises.

Publication plans.—Eighty-column punch card equipment, rather than 45-column used heretofore, will be used during this census. This will make possible more correlations and more cross tabulations of the data. Nearly all the material will be tabulated by township or similar class of minor civil division. It is hoped that a pamphlet will be issued describing the tabulation technique similar to the one which met such popular favor in 1935.

As has been done in the past, Census facts will be published as rapidly as they can be assembled and tabulated. Preliminary announcement of the number of farms will be made in the field. County press releases will be the first to be issued in Washington and these will be followed in turn by State bulletins, releases for the United States by subjects, and finally by special studies.

Training plans.—The 1935 plan of schooling Area Supervisors in Washington has been followed for the coming census. Since these Area Supervisors will be engaged for the next several months in the Censuses of Business and Manufactures, it was thought best not to give them their entire training on Agriculture and Population until a later date. Looking to that end, approval has been obtained for the specialists of the different divisions to go to the field a few weeks ahead of the date set for the appointment of the enumerators to train both the Area and District Supervisors in the schedule inquiries and problems connected with enumeration. Prior to that a correspondence course will be conducted for the Supervisors.

Three sound films of about ten minutes each have been approved

for the instruction of enumerators. One of these will relate to general problems, another to population, and the third to agriculture. The use of visual aids and sound equipment for training employees in the Washington Office is being explored.

Publicity.—A concerted effort has been made through Government agencies, farm organization contacts, radio stories, magazine items, and other channels to apprise farmers of the coming census and its purpose, thus fostering a willingness on their part to cooperate to the fullest extent. The Bureau of the Census solicits your aid in bringing about a competent and suitable enumeration and in disseminating the data once they are tabulated.

CHARACTERISTICS OF U. S. POULTRY STATISTICS

E. SMITH KIMBALL

Agricultural Marketing Service

The production of poultry and eggs has developed into one of the leading agricultural industries of the United States. Farm income from chicken and eggs has been close to a billion dollars annually during the last four years. In 1920 and again in 1929 it reached approximately one and one-half billion dollars. Income from turkey production amounted to almost 69 million dollars in 1938 and is expected to be even larger in 1939 because of a 22 per cent larger production, the largest of record, with only a small decline in prices. Annual income from ducks and geese is probably between 15 and 20 million dollars.

Farm income from poultry products ranked fourth in 1937 and 1938 as a source of farm income, being exceeded only by the value of milk, cattle and calves, and hogs. It exceeds the income not only from every other major agricultural commodity, but the combined income from large groups of commodities, such as all grains, all vegetables, and all fruits.

The chicken and egg industry, which is found on 86 per cent of the farms in the United States, has a significant influence on the living standards in farm homes as it has long been a principal source of cash income for the payment of current household expenses. The stability of the enterprise during late depression years has emphasized its importance in the farm economy. Until comparatively recent years production of chicken and eggs was almost exclusively in moderate sized farm flocks but during the last 20 years the industry has become more and more specialized with commercial production in large flocks becoming more widespread.

Development of Poultry Data.—The first general statistics on chicken and eggs were collected by the United States Census Bureau in 1880. Every 10 years from that time until 1920 and every 5 years since 1920 the Census has collected information on numbers of chickens and other classes of poultry and on production of chicken and eggs. Since about 1920, the data from the Census have been supplemented by annual information on January numbers of layers, collected by the Department of Agriculture from crop correspondents. Beginning in 1924 monthly inquiries were begun by the Department covering both numbers of layers and production of eggs.

During the last three years various intensive studies have been made, covering the whole field of poultry statistics including in-

ventory numbers, chicken and egg production and disposition, marketing records, percapita consumption of chickens and eggs, commercial hatchery records, cold-storage holdings, chicken and egg prices, and various other data pertaining to poultry and eggs. The results of these studies were the basis of revised estimates for the years 1925-37. This series was published in December 1938 and comparable figures for the year 1938 were published in March 1939. A later report, published in June 1939, included state data for the year 1924 and carried the United States series back to 1909. In September 1939 the first estimates of turkey numbers were released, covering inventory numbers of turkeys on farms January 1 and the production and disposition of turkeys during the years 1929-38.

Prior to 1936, the estimates of inventory numbers of chickens on farms, farm consumption of chicken and eggs, and chicken and egg sales were based primarily on about 35,000 returns received from a special inquiry sent to livestock farmers on January 1 of each year. In the fall of 1935, questions covering the consumption on farms of chickens during the preceding month and of eggs during the preceding week were added to the regular schedule sent to crop reporters, from which about 20,000 returns are received. These questions are asked quarterly, on the March, June, September, and December schedules. Estimates of changes in chicken and egg consumption are made on the basis of the relative changes shown by these quarterly figures from year to year. In 1938 another quarterly question, covering the death loss of layers during the month preceding, was added to the regular schedule. The returns from this question furnish the information for making the estimates of death loss of mature chickens.

Twice each year, in June and December, the USDA, cooperating with the Post Office Department, makes extensive livestock surveys through the rural mail carriers, supplemented in some States by use of direct mail. Questions about poultry were added to the June card in 1938, covering purchases from hatcheries and farm hatchings of chicks prior to June 1, young chickens of the current year's hatch already sold and eaten, the number of young chickens on hand June 1, and the number of hens on hand. In the same year a series of questions was added to the December card, covering the number of hens, pullets, other chickens, and total chickens on hand December 1, and the number of turkeys raised during the past year. About 150,000 returns are received from each of these surveys. The data from these rural carrier surveys and from the regular crop reporters will replace the data formerly obtained from the annual inquiry mailed to about 35,000 livestock producers. This

much larger sample from a more randomly selected and more representative group will give more dependable data upon which to base poultry estimates.

In December 1936 arrangements were completed for obtaining information on the production of chicken and eggs in commercial flocks. The questionnaire is mailed to a special list of commercial producers having 200 or more chickens on January 1. The group of producers having 200-399 chickens that are included in this sample contains some farm flocks but not nearly so high a percentage as in the same sized group in the crop reporters' sample. Information was collected monthly until June 1938, and quarterly since that date in all States except the North Atlantic group, which has continued the monthly survey. No reports based on these returns have yet been issued as it was thought desirable first to develop a historical background before issuing monthly reports. Beginning January 1, 1940 the survey will be resumed on a monthly basis in all States with the expectation of issuing monthly reports for the benefit of commercial producers. At the present time a special effort is being made to improve the distribution in order that adequate returns may be obtained from areas where commercial production is of primary importance.

Statistics on egg production.—Estimates of egg production are difficult to make because of the continual changes that are taking place in the size of the laying flock, as a result of the movement out of the flock from sales, death loss and culling, and the movement in of new layers from the current year's hatch, and because of the change in the seasonal rate of lay. This difficulty is materially increased from the necessity of combining farm flocks with commercial flocks, since there is considerable difference in the seasonal changes in numbers and in the seasonal rate of lay as well as in the annual rate between farm flocks and commercial flocks.

In order to eliminate the distortion of the monthly average size of laying flock on the farms of crop reporters caused by the inclusion of a varying number of large flocks, in different months, the reports were separated into two groups: flocks with less than 400 birds being designated as farm flocks and those with more than 400 birds as commercial flocks. At the time this arbitrary separation was made it was realized that size alone does not exactly determine whether a flock is commercial or a farm flock and that the so-called farm flock group of less than 400 birds would contain some commercial flocks. A better division might have been made by individual States but uniformity in handling the data was necessary.

The rapidity with which producers can get in and out of the

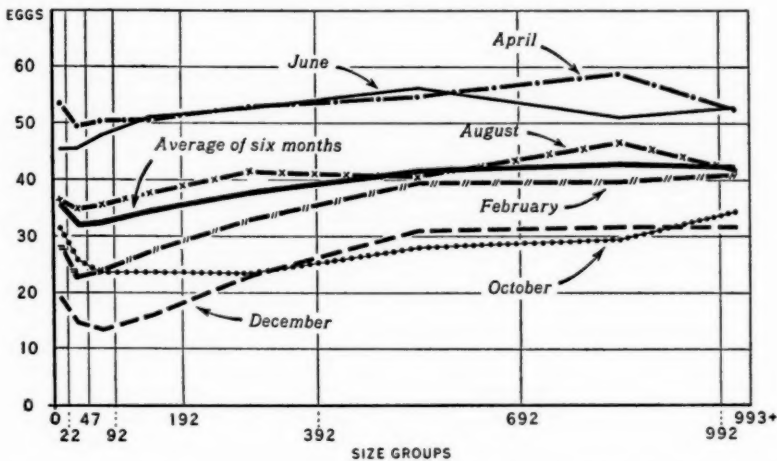
chicken business makes it difficult to measure the actual changes taking place in the industry since no means have yet been devised for measuring adequately this in and out movement; that is, the change in the numbers of flocks from year to year. Changes in the average size of flocks as now obtained do not take into account the change in the number of flocks. Even the census enumerations showing the number of flocks are of limited value if one enumeration is apparently more or less complete than another. The number of flocks as shown by the Census have generally been accepted unless there were good reasons for modifying them. However, these census enumerations are made only once in five years and formerly once in ten years, while the number of flocks change from year to year.

Forecasts of chickens raised are based on numbers of young chickens on hand reported monthly from April to January by regular and rural carrier reporters. In making the final estimates of chickens raised, these monthly estimates of young chickens are considered along with numbers of chickens raised during the year, as reported on December 1 and January 1 of each year by rural carrier and livestock reporters and the number of saleable chicks hatched as shown by the commercial hatchery report. There is a continual production of young birds from January to August in farm flocks and the movement into commercial flocks takes place in varying proportions throughout the year. Regardless of what date may be selected as best indicating changes in numbers of young chickens from year to year, there is always the necessity of estimating the change in the number which were sold or eaten before that date and in the number to be raised after that date.

The number of young chickens raised is the basis for estimating the number of pullets that will be available for addition to the laying flock. In forecasting the probable change in number of layers for the coming season, the indicated changes in the number of old hens and in the feed-egg price ratio are considered as well as changes in number of pullets.

The annual rate of lay per hen and pullet on farms January 1 is computed, essentially, from the 13 daily layings per farm flock as derived from reports made as of the first of each month January 1 to January 1, inclusive, by about 20,000 crop reporters. The monthly rate of lay is computed by multiplying the average of the daily layings at the beginning of that month and of the following month by the number of days in the month. The annual rate of lay is the sum of the 12 monthly rates. Some adjustments are made in the computed rate to allow for sample bias and lack of representativeness because of the higher rate of lay in commercial

flocks; also to allow for the difference between hens and pullets of laying age and the total of hens and all pullets on hand January 1. Particular attention is given to estimated average number of hens and pullets per farm flock on January 1. The January 1 average is checked against the averages from November 1 to February 1 and usual seasonal trends, and adjustments are made when indicated. The rate of lay per hen and pullet on hand on January 1 is multiplied by the estimated number of hens and pullets to obtain total egg production.



U. S. DEPARTMENT OF AGRICULTURE

NEG. 34371

BUREAU OF AGRICULTURAL ECONOMICS

FIG. 1. EGGS LAID PER 100 HENS AND PULLETS OF LAYING AGE, ON FIRST DAY OF MONTH, BY SIZE OF LAYING FLOCK, AGGREGATE FARM SAMPLE OF NINE SELECTED STATES, 1934.

The whole system of poultry and egg estimates has been greatly improved during the last three years by research studies, by materially increasing the size and extent of the sample data, by more complete coverage of important phases of production and consumption, and by closer contact with producers on the ground, but there is still room for much improvement.

Table 1 and figure 1 show the difference in the rate of lay among size groups in the same month as well as the difference in the rate of lay for the same size group in different months. The straight average for six months indicates the approximate average annual rate between different size groups. With the exception of the smallest size group, which shows relatively high production per layer, there is a gradual increase in the rate of lay as the size of the flock

increases. The difference in the rate of lay among size groups is greatest in the winter months and least in the spring and summer months.

Comparison of commercial and farm flock samples.—Because of the difference in the management practices of the farmers and commercial poultry producers, one would expect a difference in the annual rate of lay and the seasonal egg production between farm and commercial flocks, regardless of size. To determine the dif-

TABLE 1. EGGS LAID PER 100 HENS AND PULLETS ON FIRST OF MONTH AS REPORTED BY CROP REPORTERS OF NINE SELECTED STATES* BY SIZE OF LAYING FLOCK, 1934

Size Group (Hens and Pullets)	Eggs per 100 Hens and Pullets of Laying Age						
	Feb. 1	Apr. 1	June 1	Aug. 1	Oct. 1	Dec. 1	Av. of 6 Months
0-22	28.2	53.3	45.3	36.3	31.2	19.0	35.6
23-47	22.9	49.4	45.4	34.8	25.8	14.4	32.1
48-92	24.0	50.2	47.8	35.6	23.8	13.3	32.4
93-192	17.3	50.4	50.8	37.7	23.7	15.9	34.3
193-392	32.8	53.0	52.9	41.3	23.4	23.1	37.8
393-692	39.2	54.8	56.2	40.5	28.1	31.0	41.6
693-992	39.8	58.8	51.0	46.7	29.6	31.6	42.9
993 and over	41.0	52.4	52.8	41.8	34.2	31.1	42.2
Total	30.3	51.7	50.3	38.3	26.0	21.3	36.3

* Average monthly aggregate sample of about 5,000 reports from Ohio, Wisconsin, North Dakota, Virginia, Georgia, Oklahoma, Wyoming, Washington, and California.

ference in egg production per layer between farm and commercial flocks, the same size groups as well as different size groups in each should be compared. These comparisons between size groups are shown in table 2. The aggregates on the bottom lines of each part of the table indicate the relative differences between the annual rates of lay of the different size groups. Aggregate egg production per 100 layers in farm flocks with over 400 layers is 9.2 per cent less than in the same size group in commercial flocks, and about 1 per cent less than in the smaller commercial size group with 200-399 layers. In farm flocks with less than 400 layers it is 7.7 per cent less than in farm flocks with over 400 layers, whereas it is 16.2 per cent less than shown in commercial flocks with over 400 layers. All farm flocks show a rate of lay that is 10.2 per cent less than that of all commercial flocks. Although all flocks with over 400 layers have been considered similar for the purpose of making egg production estimates, whether in farm flocks or commercial flocks, this study would indicate that the management practice and not

size is the deciding factor in determining the classification, although the larger flocks are more apt to be under commercial management.

TABLE 2. EGGS LAID PER 100 HENS AND PULLETS OF LAYING AGE ON FIRST OF MONTH AS REPORTED BY FARM AND COMMERCIAL FLOCKS—BY SIZE OF LAYING FLOCK IN THE UNITED STATES, 1937

Month	Size of Groups of Hens and Pullets of Laying Age						
	Commercial Flocks						
	200-399	400-699	700-999	1000-2499	2500 & over	All	Over 400
January	35.8	39.5	42.3	39.0	38.8	37.6	39.7
February	36.4	43.9	46.5	44.6	39.4	39.4	43.2
March	48.0	50.7	52.9	51.8	48.6	49.4	51.2
April	57.9	56.5	56.3	54.9	49.3	56.9	55.4
May	60.0	59.3	56.9	54.5	51.4	58.6	56.7
June	54.3	55.8	55.2	54.8	50.8	54.6	55.0
July	44.8	46.2	48.4	50.2	48.3	46.1	47.9
August	39.6	41.8	40.9	40.4	41.4	40.2	41.2
September	30.7	35.0	36.5	38.8	37.1	33.1	36.6
October	24.7	29.5	33.7	35.2	34.3	27.8	32.5
November	23.7	27.6	33.6	35.1	35.3	26.8	31.6
December	24.4	30.5	34.0	35.5	35.6	27.9	33.1
Aggregate 12 months	480.3	516.3	537.2	534.8	510.3	498.4	524.1

Farm Flocks			
Month	Under 400	Over 400	All
January	22.0	30.0	24.0
February	25.7	33.4	27.9
March	39.2	45.9	40.5
April	52.8	55.4	52.9
May	57.8	58.1	57.3
June	52.5	52.8	52.2
July	44.4	47.1	44.7
August	40.4	39.6	40.2
September	36.1	33.6	35.8
October	28.8	27.8	29.1
November	21.1	26.2	22.6
December	18.6	26.0	20.5
Aggregate 12 months	439.4	475.9	447.7

Figure 2 shows the seasonal rate of lay of farm flocks and commercial flocks as well as the weighted average of the two groups. Practically all of the difference in the annual rate of lay between farm flocks with less than 400 layers and commercial flocks is due to the much higher fall and winter egg production per layer in

commercial flocks. The farm flock sample includes some commercial flocks but, in commercial areas, it does not include a sufficient number of commercial flocks to make it representative of all flocks. Therefore, in areas where commercial production is important, it is reasonable to assume that the average of the two groups, weighted on the basis of the number of chickens in each group, would be a nearer approach to the average seasonal trend for all flocks, than is obtained from the farm sample.

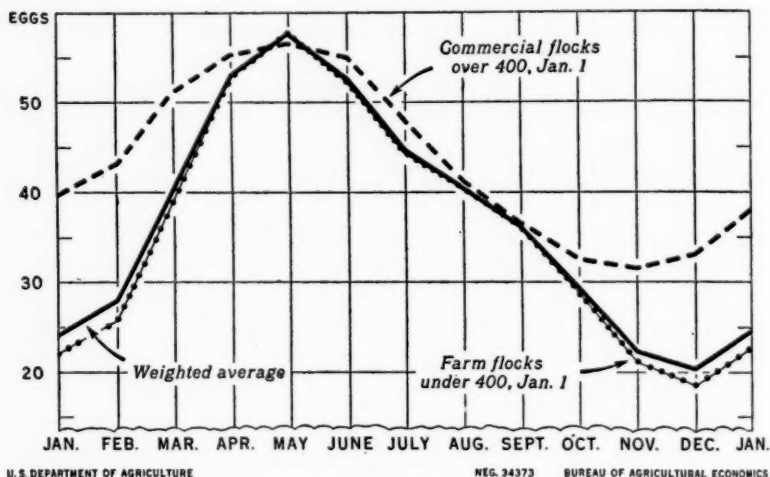


FIG. 2. EGGS LAID PER 100 HENS AND PULLETS OF LAYING AGE ON FIRST DAY OF MONTH BY FARM AND COMMERCIAL FLOCKS IN UNITED STATES, 1937.

DISCUSSION BY JOSEPH A. BECKER

Agricultural Marketing Service

I have been asked to discuss Mr. Jenkins' paper on the Agricultural Census of 1940. I also had an opportunity to see the paper prepared by Messrs. King and Simpson, and the two papers suggest to me the discussion of timing, which I feel is one of the vital problems of statistics gathering. Mr. Jenkins touched upon the date of the Agricultural Census, April 1, and mentioned the recommendations, hopes, and pleas of representatives of the USDA that the date might be changed to January 1. Messrs. King and Simpson pointed out some of the differences and inconsistencies in the data concerning crop acreages on identical farms, these differences and inconsistencies developing not only from conflicting definitions, but also from the passage of time between successive inquiries. The proper timing of inquiries is a fundamental consideration of which we become more and

more conscious as we go on our way attempting to measure economic developments in the agricultural industry. In the work carried on by the Agricultural Marketing Service with respect to crop acreages, for example, a report upon the condition of potatoes in February is more significant with respect to the yield per acre of potatoes in Florida than the conventional yield question asked at the close of the potato season for the United States. In like manner, an inquiry upon intentions to harvest in March undoubtedly is more significant with respect to harvestings of early planted crops than is an inquiry on actual harvestings after the crop has been harvested and sold.

The realization of the importance of timing has led to the regionalization of inquiries with respect to acreage and production made by the Agricultural Marketing Service. Messrs. King and Simpson suggest in their paper that an aerial photograph can establish definitely the shape and size of a field, but that at an opportune time someone must gather the statistics concerning the crop grown on that field. This opportune time is when the crop is about to be harvested, when there should be least confusion with respect to definition, and least reliance upon memory of things gone by. The files of the Crop Reporting Board contain numerous examples of successive inquiries concerning agricultural phenomena, the results of which are inconsistent and incongruous within themselves. The enigma of many such series can be solved only by the rationalization of their sequence; and due consideration to the place in time which each successive sample holds. In many States cooperating agencies of the Service are empowered by State legislation to gather agricultural statistics through the machinery of the township or county assessors. Each such annual enumeration of acreage, livestock numbers, etc., is more or less fixed by the time of visitation set for the evaluation of property for taxation purposes. These enumerations vary in completeness, depending upon the thoroughness of administration, but they vary also in usefulness, depending upon the time of enumeration. These enumerations also vary in the extent to which they agree with the quinquennial and decennial Censuses, depending upon the time of year in which they are taken in relation to the time of the Federal Census.

It is this deep appreciation of the significance of timing that is responsible for Department of Agriculture's recommendations for a Census date nearer to January 1. The arguments for the earlier Census date are numerous. The most important are: (1) Moving day on the farm frequently takes place between January 1 and April 1; (2) recollection of events of the preceding year (to which many Census items relate) becomes less definite as time passes; and (3) a livestock inventory on January 1 is not complicated, as on April 1, by rapid accretions of young stock. The Department recognizes that there are arguments in favor of the April 1 date, but its representatives are generally thankful that the quinquennial Census will probably continue to be taken as of January 1.

The paper by Mr. King and Mr. Simpson touches upon a number of sampling problems which have a bearing upon Census enumerations. Other sample studies previously reported, developed under the same ar-

rangement with the New York City WPA project, have been similarly significant. For a number of years, both the USDA and the Bureau of the Census have given serious thought and consideration to the essential principle of a partial annual Census, suggested by the Buchanan Bill. Sampling studies in New York have thrown considerable light upon the probable efficiency of such a partial Census. The results have been sufficiently definite to indicate that the original idea of an enumeration of one or more townships within a county, to provide a basis for county statistics, will need to be modified in the event that provision is made for annual partial Censuses. These studies have indicated that the township is too large a sample for use in the manner originally contemplated. On the other hand, the studies have been sufficiently searching to indicate that suitable substitutes for the township unit can be utilized efficiently.

Mr. Jenkins in his paper told of two rather important departures in the present Census. Those of us on the outside, who are not responsible for the final decisions, sometimes find it easy to make recommendations for innovations and changes. If and when the Census Bureau accepts these recommendations and the plans produce questionable results, we are sometimes not above criticizing it for making the change. The decision to make an innovation is fraught with danger, first, because there is no pre-knowledge that a new plan will work under the actual conditions which the Census must face; and second, because comparability with preceding enumerations often is destroyed. In taking the important step to provide for the regionalization of crop inquiries, the Bureau of the Census has made a courageous innovation. As Mr. Jenkins said, the plan should provide more information with fewer questions. It should be obvious that the change will bring about considerable complexities of administration. In the event that enumeration difficulties develop and the results are not all that some might think should have been secured, or that some measure of incomparability should develop, I am sure that most of us in the USDA will not be hypercritical, but will take the position that the expected gains were worth any losses which might be incurred.

In like manner, it is our conviction that the Bureau of the Census did a courageous thing in setting up the new plan for the enumeration of irrigated acreage. The procedure followed in previous attempts has not produced the results anticipated and has not provided all the information which those interested in the statistics of crop production have desired. The method of attacking this problem for the 1940 Census has simplicity in its favor, but the danger of omission is enhanced and may operate against complete success. Representatives of the USDA and the public at large, however, have had every opportunity to suggest methods which might be better and which would be workable. Under the improved administrative plans, the method finally adopted by the Census should provide more information on this subject than has been gathered by any previous Census. It is anticipated that the methods of tabulation and summarization will be such as to provide a useful body of data on this important subject.

WAR ADJUSTMENTS FOR AMERICAN AGRICULTURE

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University of Wisconsin

The adjustments American agriculture should make to meet the impacts of war-time conditions, depends, of course, upon those war-time conditions. To just what is agriculture expected to adjust? This is another case where the diagnosis is far more difficult than the prescription.

The nature, and the extent, of the economic melange likely to come out of this war depends, largely, upon a combination of unknowns. If one is to hazard an opinion upon the probable effects of war upon agriculture, one must attempt to weigh these unknowns. Obviously, any conclusions one may make implies answers to such questions as:

1. The length of the war. Will it last one, two, three, or more years?
2. The number and size of the nations involved. Will it spread to countries other than those now engaged? And, more important perhaps from the standpoint of the subject under discussion, will one side or other dominate the seas?
3. The role to be played by the United States? Will we be confined to that of a "cash and carry" supplier? Are we likely to enter as a belligerent?

These are a few of the questions that must be faced. It embarrasses me to confess that I do not know the answers. Furthermore, I do not intend to construct a network of evidence in an attempt to furnish the answers. I shall simply adopt some scantily supported assumptions and proceed on my way. These assumptions are:

1. That the war will last an appreciable length of time—one or more years.
2. That the French and British empires and their allies will dominate the seas; and
3. That the United States will continue as a neutral supplier to all who can come and get our wares and pay for them upon delivery at our docks.

You are welcome to such small evidence as I have for making these assumptions.

All indications are that England and France place reliance in the naval blockade as their strongest weapon. Such a blockade works slowly. It is a check-mating game which, at best, requires time to

establish its operation. The effects of successful operation do not register until accumulated supplies in the enemy country are exhausted. Blockade tactics are the very opposite of those upon which the "blitzkrieg" philosophy is based. A war once under way is not easily stopped until one side or the other has won decisive military victories.

The assumption that the empires and their allies will dominate the seas is a guess based upon what seems to be the present balance of naval power.

I am more skeptical regarding the assumption that the United States will remain a neutral supplier. History does not lend so much support to that view as one could wish.

The above set of assumptions have one outstanding virtue. They are probably as good as any other set.

The economic impacts of the war upon agriculture with the United States as a neutral, will come largely through the effects of the war upon farm prices.

It is my thought to divide the price influencing evidence into two groups: One containing the evidence which does not point to increases in farm prices, and the other group containing the evidence that points toward price increases.

First let us look at the evidence in the minus column.

In this list belongs the fact that *farm prices did not increase at the outbreak of the war in 1914*. Briefly summarized, here is what happened.

Exports of wheat and flour increased sharply.

Cured pork exports increased substantially.

Cheese exports increased from a negligible amount to around 50 to 60 million pounds annually.

Exports of evaporated and condensed milk products rose sharply. But the total amount of manufactured dairy products sent abroad was a relatively small part of total production—around $5\frac{1}{2}$ per cent at the peak.

Lard exports declined somewhat.

Cotton exports fell off by one third.

Exports of "non-essentials" such as fresh fruits were cut off almost entirely.

Regardless of substantial increases in exports of some of the farm staples, agricultural prices did not increase with the outbreak of the war in 1914.

The price index of all farm commodities dropped from 102 in August 1914 to 94 the following November. This drop is largely accounted for by the decline in cotton prices. Farm prices did not begin to rise until 1916. From the beginning of 1916 to April 1917,

they rose 60 per cent. The phase that we are likely to remember is the real advance which came after our entry into the war. By May 1920 farm prices were 244 per cent of their 1909-1914 level.

The most reasonable explanation of this rapid rise after our entry into the war was due to inflation resulting from the war-time borrowings of the government. Our national debt rose from one to 26 billion dollars. Goodly sums were loaned to the allies with which to buy goods from us. The United States Government became a large purchaser of farm products.

On the whole, we can say that the last war did not appreciably influence prices in the United States until a year and one-half to two years after its outbreak.

World supplies of agricultural products are far more ample now than in 1914. World wheat supplies are estimated at two billion bushels more than they were in 1914, while consumption is only 900 million bushels more. The world now has on hand an estimated supply of 1,400,000,000 bushels of wheat in excess of its requirements during the coming year.

The supply position of cotton is just as sad or just as bright depending upon the point of view. The world carryover in 1914 was around 3,800,000 bales. In 1939 it was 14 million bales—nearly four times that of 25 years ago. The situation with respect to fats and oils is pretty much the same.

While these commodities are in a class by themselves, measured in surplus supplies, one can say with reasonable accuracy that 1914 saw little or no excessive supplies of agricultural raw materials while 1939 experiences goodly quantities of practically all agricultural raw materials.

The war in 1914 came with a suddenness which caused both shock and surprise. There was little opportunity for the participants to accumulate stores in anticipation of the emergency.

The war of 1939 came as a shock, but not as a surprise. Before its outbreak, nations were feverishly preparing. It is reasonable to assume that Russia, Germany, England, and France are all better supplied with accumulated stores of agricultural raw materials than was the case in 1914. Germany, especially, is thought to have followed systematic storing in anticipation of the present conflict.

Ample supplies are augmented by marked advances in chemical processes, resulting in the commercial production of synthetic substitutes. These developments make nations less dependent than formerly upon outside sources of supply.

Nations are going to great lengths to conserve their resources. There is every indication that consumption is being regulated not so much as a result of an existing shortage, but in order to prevent

or postpone a future shortage. France and England are now at a stage in conserving resources, which was reached as a result of three years experience during the last war. Food rationing and co-ordinated purchasing are examples. Undoubtedly, existing supplies per unit will go farther now as compared to the earlier stages of the last war.

Another consideration: *The lack of credit extended to foreign purchasers may seriously handicap sales by us.* May I merely observe in passing that during the first world war, both private and governmental credits were available in goodly amounts to the allies. On the basis of one of our assumptions these credits will not be available during the present war.

Closely associated with the question of ability to pay is the recent declines in the pound sterling and the French franc measured in dollar values. Foreigners may secure dollar exchange with which to buy our goods by selling goods to us. But it is not likely that we will markedly increase our imports through increased purchases abroad. Furthermore, at the beginning of the first world war, the English pound increased in value relative to the dollar. Since the beginning of this conflict the pound and the franc have depreciated in value in terms of the dollar. This means also that our goods will be high-priced in terms of pounds and francs—a handicap to English and French purchasers. Hence, if we demand cash on delivery, the English and French will have to depend largely upon payments in gold or in dollars which they already possess.

One inevitable result of this situation is that England and France will give preference to those countries, their dominions and their colonies with currencies more closely associated with their own, than is the dollar of the United States.

May I list one additional factor in the minus column of price influencing forces: That is the often expressed opinion that this is not a war involving heavy consumption. I, myself do not share this view, hence I shall dismiss it with a mere mention in this column and discuss it more at length in connection with the consideration of price boosting forces.

What are the forces that point toward increases in agricultural prices?

The first tendency deserving of consideration is the fact that *agricultural prices have gone up as a result of the war.* Certainly, too much reliance cannot be placed upon the analogy between 1914 and 1939.

Only recently the United States Department of Agriculture announced that substantial additions to the agricultural income for 1939 may be expected as a result of the recent price advances (ad-

vances since the outbreak of the war). The index of the prices of all commodities as reported by the Bureau of Labor Statistics rose 5.6 per cent in September. Farm commodities rose 10.5 per cent during the same month. Are these increases merely an indication of the "jitters" that will pass with the first shock? One cannot say. But much to my surprise, these gains were still operative on December 9, the latest report available when this paper was prepared.

Evidence which points toward price increases is not lacking and I submit that which appeals to me as being most important.

Agricultural prices abnormally low: Farm prices are at abnormally low levels as compared with other prices. They are out of line. This was not the case in 1914. In August of this year (prior to the outbreak of the war) the farm price ratio was 74 per cent of the 1909-1914 level, 26 per cent below parity. But wheat prices were around 50 per cent of parity; corn 56 per cent; cotton 56 per cent; and hogs 60 per cent of parity. Prices of important farm commodities were scraping bottom. It should take less of a jolt to start unduly low prices on the upgrade than to increase prices that are relatively high. During the last war, agricultural prices increased more rapidly than did prices in general. Since farm prices are excessively low, I am inclined to believe that one has the consolation of predicting that it is easier for them to go up than down.

Managed currencies: Another factor which we should not overlook is that the currencies of nearly the whole world were tied to gold in 1914. There is no such tie at the present time, at least the tie is of a flimsy fabric. I do not know of a single nation at present with a currency convertible into gold. This situation makes for fluctuating monetary values. During periods of a war crisis such as the one we are now in, money is apt to become cheaper. This cheapness is likely to be reflected in higher commodity price levels.

We in this country started the last war with a debt of one billion dollars and a balanced budget. The outbreak of this conflict finds us with a debt of over 40 billions of dollars and a budget that does not even approach balance. To me, this tendency toward currency instability represents a far different economic atmosphere than that existing in 1914.

In some quarters much is made of the point that nations are exhibiting a marked tendency to finance the war on a "pay-as-you-go" basis. Insofar as this is done, the less is the likelihood of inflationary reactions upon prices. But a recent announcement by Sir John Simmons regarding the present budgetary deficit of England, does not support the view that governments will be able

to finance the war on anything like a "pay-as-you-go" basis. I doubt both the probability and the possibility of such an accomplishment.

War psychology: War produces a psychology based upon the experiences of the last war, which leans toward storing and hoarding. The first precaution of warring nations is that of preventing their nationals from doing this very thing. Nevertheless most of us remember those wheatless, meatless, sugarless, fatless days of the last war. We would like to avoid them insofar as we may legitimately do so. This desire has a stimulating effect upon price, even though supplies may be ample. As someone has said, "Storing for a rainy day makes it rain." Our purchases for future consumption causes prices to rise. Rising prices make buyers more eager to buy and sellers more reluctant to sell. This tendency pervades neutral nations as well as those engaged in the conflict. As war is waged today the neutral nation never knows when it may become a party to the fray. War is contagious—the longer a war continues the more likely it is to spread. It is my conviction that if fighting continues a year, more nations will either be overrun or join of their own accord.

Switzerland was a neutral during the last war, but one would have a difficult time convincing its citizens that they were not in the war. Food was extremely scarce. Privation was widespread. One of their complaints was that they sent a commission to the United States to buy wheat. They couldn't get the wheat so they bought corn. I never liked corn bread either, but I suggested that their difficulty was that they didn't know how to cook it.

European neutrals, at least, must place themselves upon a war footing. They must accumulate supplies.

The point I am trying to make is that war psychology growing out of experiences of the last war is a price-lifting psychology. I do not want to exaggerate this point. I give it to you for what you may think it worth—no more.

Now let us look at something more tangible. Are exports of agricultural products likely to increase?

The loss of foreign markets, explains in large measure, the price depressing surpluses of agricultural staples. If exports increase, surpluses are likely to diminish, if not vanish. The longer the war lasts the greater is the likelihood of increased foreign demand for our foods and fibers.

Exports are still at a low ebb. Not so low as they were, but still low as measured by those of the twenties. Assuming that England and France control the seas, we have lost Germany and Russia as customers. But they were buying little anyway. That loss is slight.

England had been getting much of her wheat from Australia and Canada, her meat from Argentina and New Zealand, and her pork from Denmark. But war boosts ocean freight and insurance rates immediately. The shorter the haul, generally speaking, the less the hazard because of the possibility of convoy. If cargo space becomes scarce as it did in the last war, nations will turn to the nearest supplier. That means Canada and the United States would have a preference over Australia and the Argentine by virtue of a shorter haul. It is not clear that cargo space will become scarce. I mention it as a possibility.

Denmark may be compelled to send her pork to Germany. She is too close a neighbor to ignore such a request. It may be the same with Holland and the Scandinavian bloc. Poland, the Baltic States, and Finland no longer compete on the world market. This situation alone, should shift some demand in our direction.

Europe is mobilized. This means man power diverted from peaceful pursuits on farm and in factory. Mobilized man power is seldom engaged in productive enterprises as that term is commonly used. Production is curtailed at the very time when consumption is enormously increased.

War is a greedy monster. It is said that in a modern war all estimates of the needs of war fall short. Imagination based upon experience fails to visualize the requirements in terms of volume. When it costs hundred dollars to fire a single shot from a large caliber gun, one gets a faint conception of the man hours required to produce these implements of destruction. The cost of the equipment and ammunition is probably the least cost. The destruction which they do is quite as great in terms of cost.

I take little stock in the view that this is a "phony" war, in that it is not a destructive war; in that its consumption rate is not great. To be sure, there have been no great destructive periods such as were experienced in the last war. Nevertheless the belligerents must prepare for such eventualities. That preparation supports increased demands for materials.

To me, a war that sees 500,000 tons of shipping sunk during the first two months, and ships being sunk at an increasing rate during November and December, is a destructive war. When one realizes that not only the ships are sunk, but their cargoes are destroyed as well, one must conclude that consumption is increased enormously.

If the war continues, certainly there will be decreased European production of the necessities of life, and an increased demand for both raw materials and manufactured products. One of the characteristics of war is that it consumes much faster than it produces.

One cannot treat with the possibility of increased agricultural exports without touching upon this question of the ability of prospective foreign purchasers to pay in dollars. Have they the gold, or can they secure the dollars through other means?

In 1914, England and France together possessed around 7½ billion dollars in gold at home and abroad, and in American securities and in investments in this country. In 1939, these two countries have over eight billion dollars in these assets. In this respect they are in a better position at the opening of the present conflict than they were at the beginning of the former one.

Furthermore, it is believed that the governments of the two countries have more control of these assets now than they had in 1914. In other words, the American securities and investments are more readily available to the government for purchases of American materials. One may add to the assets just mentioned an unknown quantity of British and French owned securities in the dominions and in other countries which could be converted into dollars at favorable rates of exchange.

One more consideration: The French and British Empires produce around 730 million dollars in new gold annually. This is nearly three times their production in 1914.

Increase in domestic demand: Since our neutrality legislation permits sale by us, of anything, to anyone who can come and get it and pay cash, there is reason to expect a considerable increase in the foreign demand for certain industrial goods, at least. After all, the purchasing power of the domestic consumer remains an important factor in determining the price of most farm products. Employment of goodly numbers of those now unemployed would create a city buying power which would undoubtedly strengthen the prices of such commodities as meats, dairy, and poultry products, fruits and vegetables. Many business men and economic forecasters are looking for marked improvements in business even though the war does not continue. There are greater possibilities it seems to me, for business expansion now, than was the case 25 years ago, at the outbreak of World War I. Industrial production is relatively low, and money and credit are readily available for domestic purposes. Effective demand seems to be the thing most wanting. Whatever the cause, business improvement promises to aid agriculture by increasing purchasing power of a great mass of consumers.

It will be said immediately that farm costs will increase with increased prices. This is readily granted, but farmers have much to gain from increased price levels even though prices of the commodi-

ties which they buy also rise. The farmers' fixed costs such as taxes and interest rates are likely to lag. His debts will be easier to pay. Charges for services such as transportation are likely to change less rapidly than do prices of commodities.

To summarize the situation as I see it: On the one side of the ledger we have:

1. At the outbreak of the last war, prices of agricultural commodities did not advance appreciably during the first year and a half.

2. World supplies of farm products are far more ample today than in 1914.

3. The participants have had more opportunity to prepare for the 1939 conflict than was the case in 1914. Their stores of needed supplies are greater now than then.

4. The production of synthetic substitutes is far more advanced, which tends to make warring nations less dependent upon outside sources of supply.

5. A possible lack of credit on the part of prospective purchasers may discourage sales by us abroad. Preference is likely to be given to countries with a more favorable exchange rate from the standpoint of the country of purchase.

6. Developments up to the present time indicate that this war may be one with only a moderate rate of consumption.

On the other side of the ledger we have:

1. Material advances in the agricultural price level since the outbreak of the war are an accomplished fact.

2. The abnormally low level of agricultural prices as compared to other prices, should make them more susceptible to price boosting forces.

3. Managed currencies lend themselves more readily to inflationary tendencies.

4. War psychology is a price-boosting psychology.

5. Russia, Germany, Poland, Finland, and the Baltic countries are out of the agricultural export markets. Holland and the Scandinavian bloc are likely to sell largely to Germany. They may have no other choice.

6. If shipping is scarce, the southern hemisphere will be at a disadvantage in selling to France and England. This would leave the United States and Canada in a favored position.

7. Mobilization decreases production; war increases the rate of consumption.

8. England and France are not without the ability to pay, in the absence of credit.

9. Domestic demand, aided in part, at least, by increased foreign purchases of manufactured goods, shows signs of improvement.

May I observe at this point, that war is a disorganizer. It lays a blighting hand upon the demand for some commodities, and unduly increases the demand for others. It is an unstabilizer. In many cases the advantages it distributes are granted on the basis of heavy collections at a future date. On the whole, I believe that the inflationary tendencies of war will tend to boost general price levels, including most agricultural products. "How soon" or "how much" are questions I am not prepared to answer. On the other hand, our huge carryovers of such commodities as wheat and cotton make it difficult to see how we can have a marked or sustained rise in their prices during the present crop year.

One may predict with certainty that the longer the war lasts the greater will be the demand for the products of agriculture. Now if prices do increase, due to war stimulus, how is the farmer to protect himself against headaches that inevitably follow the price drop accompanying the removal of the war stimulus? We would like to avoid the farm aftermath of the last price spree. One safeguard is obvious. Pay debts or at least reduce them during periods of high prices if they should come. It is generally agreed, that farmers with no debt or a small debt load, have weathered the depression in fairly good shape. But when prices are good there seems to be an irresistible urge to expand operations. There are two ways to do this: (1) More intensive care and better working of the land one has, or (2) the acquisition of more land. I recommend serious consideration of the former method. I expect none to follow that advice. The rapid mechanization of agriculture has a tendency to spread man hours over larger and larger areas. Nevertheless, may I urge upon farmers that if they must buy the adjoining forty to postpone its purchase until payments are completed on the home eighty. If there is to be a mortgage, limit it to the newly acquired forty. Deficiency judgment laws are becoming less stringent each year.

THIRTIETH ANNUAL MEETING OF THE AMERICAN FARM ECONOMIC ASSOCIATION

The thirtieth annual meeting of the American Farm Economic Association was held in Philadelphia, Pennsylvania, Hotel Adelphia, December 27, 28 and 29, 1939.

Tribute to the memory of Professor I. G. Davis

Statement by President Elliott: Just a year ago, at this time, we were meeting at Detroit to elect officers of the Association for the ensuing year. Less than three months later, on March 15, Dr. I. G. Davis, who had been elected president, died suddenly and unexpectedly at his home at Storrs. Although up to this point no official cognizance has been taken of Dr. Davis' death, I am sure it frequently has been in the minds of all of you. Due to the circumstances surrounding his passing, particularly the fact that he died while serving as the chief officer of the Association, it seems appropriate that we open the Business Meeting this year by rising for a moment of silent tribute to his memory.

Report of the President

You are all familiar with the circumstances surrounding my elevation to the Presidency of the Association. You can readily appreciate that the picking up of the reins relinquished by one with the wide experience and intellectual competence of Dr. I. G. Davis was not an easy task. Fortunately, Dr. Davis, through correspondence, memoranda, and in conversations with his immediate colleagues in Storrs had indicated in fairly clear outline his ideas with respect to the annual program. He also had contacted a representative cross-section of the membership of the Association for their ideas and suggestions. All of this material was made available to me at once and was of great assistance in developing the new program. To all of you who contributed in this way and particularly to the men at Storrs who gave so generously of their time, I wish to express my sincere appreciation. I am also deeply indebted to a number of my colleagues in the Department and especially to Drs. Young and Hobson as well as to the other officers of the Association for their generous help and guidance. Their hearty cooperation and wise counsel have been extremely helpful.

To develop a program which will appeal to a group with as wide a divergence of interests and points of view as this one is by no means a simple matter. With the growing scope and complexity of the problems with which those trained in the field are called upon to deal, the task, furthermore, promises to become even more diffi-

cult. Three choices would appear to be open to the President in developing the program. He can strive for full geographic representation and try to get complete coverage of the various fields of interest and specialization—take the other extreme and exercise a high degree of selectivity both as to representation and subject matter or—seek to reach a workable compromise between the two extremes.

The first of these alternatives is not now practicable and will become less so, in increasing degree, with the passage of time. As the membership of the Association expands and the fields of special interest enlarge, the President inevitably will be forced to exercise an increasing degree of selectivity both as to representation and as to subject matter in formulating the program. It is important, however, that this selectivity not go so far as to exclude the special field of interest of any considerable group of the membership or to disregard the desirable practice of wide participation in the program.

It seems to me that both of these things can be accomplished and the program still be kept interesting and scholarly and within manageable proportions if two major changes in present procedure are made: (1) provide for much more discussion, both formal and informal in both the general and section meetings, and (2) modify and expand the round table sessions.

With some exceptions, the practice has been to load both the general and section meetings with too many formal papers. Although provision has been made for a certain amount of discussion, it usually has been confined to two or three men for each session program but with little or no discussion from the floor. It is my belief that interest in these sessions can be quickened and a much wider participation achieved if the panel device be used in increasing degree for the general sessions, and if the programs for the section meetings be centered around a single paper with provision for much fuller discussion both formal and informal. A procedure somewhat analogous to that used in the Wednesday evening program of this year's meeting, whereby the papers would be prepared and circulated in advance but not read at the meeting and at which there would be ample opportunity for questions and discussion from the floor, illustrates the sort of procedure contemplated for the general sessions. Although all these conditions were not fulfilled in the Wednesday evening session, I think, nevertheless, that the approach merits further experimentation. The Thursday forenoon session on Land Economics and the Thursday night session on County Planning, similarly typify the procedure conceived for the section meetings. Each of these sessions was built around a single paper. There were at least four formal discussants on each program,

each of whom instead of discussing the entire paper centered attention on only one major point or issue raised in it. This procedure avoids duplication in the discussion and also encourages the selection of discussants having particular competence with respect to specific points at issue. It also provides opportunity for selecting discussants with divergent opinions and with different geographic interests and points of view.

The second suggested change, relating to the round table sessions, is advanced with the view of meeting the demands of the specialists that their fields of special interest be recognized on the program. If the general and sectional meetings are handled in the manner suggested above, it would not be difficult to expand the number of round table sessions a great deal since a large number can run concurrently. The principal deterrent would be the limited space available for printing the extra papers in the Proceedings Number of the JOURNAL. Inasmuch as these sessions are intended for and are of primary interest to very small specialized groups consideration might be given to the possibility of excluding papers for these sessions from the JOURNAL and have those in charge of each round table make arrangements for their distribution.

These two suggested changes for handling the annual program grow out of observations at previous meetings and out of the experience in developing the program this year, and are passed on to my successor for whatever consideration he may care to give them.

In conclusion, may I express again my sincere thanks to all of you and particularly to those of you who accepted a place on the program. Your generous cooperation not only lightened the load but made my brief tenure in office a pleasant one.

Respectfully submitted,
(signed) F. F. ELLIOTT, *President*

Report accepted as read.

Report of the Secretary-Treasurer

Finance: The Association's operating income for 1939 was \$6,733.00. This is \$360.00 above that of last year. Operating expenses were \$4,752.00, which were \$270.00 above last year's operating expenses. Non-operating income this year was \$886.00 as compared to \$1,138.00 last year. The difference is largely explained by the lower profits realized this year on the sale of securities. The total net income for the year was \$2,867.00 as compared to \$3,030.00 last year.

The Committee on Investment Policy has reported its operations in detail to the Executive Committee. The assets of the Association consisting of cash, and securities computed at cost, amount to \$25,146.00. The market value of the securities at the close of the

fiscal year was \$1,010.00 less than their cost. The same item for 1938 was \$1,128.00, and in 1937 it was \$2,291.00. Depreciation in the value of our securities is less this year than during either of the two previous years. The Association since 1935 has realized a net profit of \$1,142.00 from the sale of securities.

The operating and financial statements for the fiscal year 1939, follow:

OPERATING STATEMENT			
THE AMERICAN FARM ECONOMIC ASSOCIATION			
Year Ending November 30, 1939			
(Compared with 1938)			
<i>Operating Income</i>		1939	1938
Receipts from Dues	\$ 6,157.95		
Back Numbers Sold	418.89		
Reprints Sold	107.94		
Miscellaneous	48.83	\$ 6,733.61	\$ 6,374.02
<i>Operating Expense</i>			
JOURNAL OF FARM ECONOMICS			
Vol. XXI, 4 Issues	\$ 3,520.77		
Vol. XXI, 4 Reprints	478.56		
Handbook	217.12	4,216.45	
<i>Annual Meeting Expense</i>			
Annual Meeting, 1938	\$ 161.73		
Reprints of Program, 1938	12.70		
Arrangements for Meeting, 1939	9.86		
Ballots, Envelopes, Paper	21.75	\$ 206.04	
Back Numbers Purchased	41.00		
Postage	189.46		
Office Supplies	33.60		
Miscellaneous	65.50	4,752.05	\$ 4,482.20
Excess, Receipts above Operating Expense		\$ 1,981.56	\$ 1,891.82
Plus Non-Operating Income			
Interest on Securities	\$ 807.31		
Interest, Savings Account	10.80		
Profit on Sale of Securities	67.85	885.96	1,137.80
Total Excess, Receipts above Expenses for the year		\$ 2,867.52	\$ 3,029.62

FINANCIAL STATEMENT			
THE AMERICAN FARM ECONOMIC ASSOCIATION			
December 1, 1939			
<i>Assets</i>			
Cash—bank balance	\$ 1,215.56		
Stocks and Bonds—costs*	19,205.89		
Savings Account	4,724.26	\$25,145.71	\$22,278.19
<i>Proprietary Interest</i>			
Net worth December 1, 1938	\$22,278.19		
Plus net returns for the year			
Operating	\$ 1,981.56		
Non-Operating	885.96	2,867.52	\$25,145.71
			\$22,278.19

* Market value as of November 30, 1939—\$18,195.51.

Handbook: A membership directory was published as a supplement to the August number of the JOURNAL. The printing cost was \$217.00. This is the first directory to be published since 1928.

Membership: The membership at the close of the fiscal year was 1,269, a gain of 40 during the year. A total of 191 new members were added to the rolls during the year, as compared to a loss of 151 old members through delinquency (115), withdrawals (29) and death (7).

The problem of increasing the membership of the Association is one of the most difficult tasks facing the office of the Secretary-Treasurer. It can only be met effectively through widespread cooperation of the members themselves. Only the members are in position to utilize personal contact methods with their colleagues, on behalf of the Association. The Secretary wishes to express publicly his keen appreciation of the activities of those members who do make it a point each year to recommend individuals for membership. He solicits similar cooperation on the part of all members.

Respectfully submitted,

(signed) ASHER HOBSON, *Secretary-Treasurer*

Report accepted as read.

Report of the Auditor

In accordance with the request of the President of the Farm Economic Association I have examined the accounts of the Secretary-Treasurer of the Association for the year ending November 30, 1939. I have checked all entries against the supporting vouchers and found them in agreement. The state of assets of the Association was checked by examination of the bank statements and by checking the securities owned by the Association.

I certify that the books have been carefully, correctly, and efficiently kept, and the financial statement made by the Secretary-Treasurer reflects accurately the financial transactions and the financial situation of the Association as shown by his records

Respectfully submitted,

(signed) WALTER H. EBLING, *Auditor*

Report accepted as read.

Report of the Editor

Volume XXI of the JOURNAL OF FARM ECONOMICS included the regular quarterly issues. The four numbers for 1939 contained 931 pages: the contents (exclusive of the Proceedings Number) were as follows: 23 major articles; 11 notes; 39 reviews; 3 articles prepared for the December 1939 annual meeting; publications received, news notes, preliminary program for the annual meeting, index for Vol-

ume XXI, and exchange advertisements with other journals in economics.

The Proceedings number comprised 48 articles; 12 discussions and round tables; the annual reports; publications received and 1 review. The total number of pages of this issue was 418. For the Proceedings issue 76 papers were submitted to editor for publication; sixty were accepted and sixteen papers were withdrawn because of lack of space or not suited for publication.

During the period from November 20, 1938 to December 1, 1939, 68 papers were submitted to the editor for publication in the JOURNAL. These were disposed of as follows: number accepted for publication, 36; withdrawn¹ or not suited for the JOURNAL, 25; no action, 7; returned for revision, 22; resubmitted after being returned for revision, 16.

The November issue commemorated the one-hundredth anniversary of the active participation of the Government of the United States in the collection and dissemination of agricultural data. It was planned by a committee consisting of Professor John D. Black, Dr. Charles Sarle, Dr. Oscar C. Stine, and Professor Theodore W. Schultz.

The editor has come to depend increasingly upon Mrs. Florence Nichols to handle the many difficult routine tasks that are inescapably involved in getting out and handling the affairs of the JOURNAL. Also during the past year the editor has received much help from a score of individuals scattered among as many schools as "readers" of manuscripts. Their comments and advice have facilitated greatly the selection of the better materials for publication.

The source of perhaps the most important satisfaction of being editor has been to receive the willing help and counsel from the members of the editorial council, busy as each of them is, to obtain the full cooperation of the President as he plans his annual program and of the Secretary-Treasurer of the Association, and surely not the least, a full measure of tolerance and often forgiveness by those who submit their papers to the JOURNAL.

Respectfully submitted,
(signed) T. W. SCHULTZ, *Editor*

Report accepted as read.

Report of the Election Tellers

A count of the ballots cast by the members of the American Farm Economic Association for the officers of the Association for 1940 shows the following men to have been elected:

¹ Papers not resubmitted after being returned to the author for revision are here listed as—withdrawn. Papers still in the hands of readers are included under—no action.

President	H. B. Price
Vice-Presidents	G. A. Pond
	H. B. Rowe
Secretary-Treasurer	Asher Hobson

A total of 511 votes were cast.

(signed) E. B. HILL
A. A. DOWELL

*Report of Committee on Recruiting and Training Personnel
in Agricultural Economics*

This committee has been in existence for several years and has been endeavoring to secure a thoroughgoing survey of the existing situation pertaining to the training and experience of the present personnel in agricultural economic research, resident instruction and extension, the number and quality of those in training, and the facilities available and being utilized for the training of personnel. Negotiations have been under way with the Social Science Research Council and the American Council on Education in an attempt to secure funds for a thoroughgoing survey of the present situation and to obtain a well qualified person to conduct the survey.

These objectives seem reasonably certain of attainment at present. It is expected that the survey will be under way early in 1940 under the leadership of a competent person and with the aid of an advisory committee. It is expected that the advisory committee will include members of the American Farm Economic Association. The American Council on Education is taking active leadership in making the survey. Your committee is cooperating with the American Council on Education in this work and also with a similar committee of the Social Science Research Council.

It is recommended that this committee be continued during the coming year with such changes in personnel as seem desirable to the incoming officers

Respectfully submitted,
(signed) W. E. GRIMES, *Chairman*

Report accepted as read.

*Report of the Committee on Definitions of Terms in
Farm Management*

The Committee on Definitions of Terms in Farm Management, in accordance with its instructions from the Association, has prepared a tentative report on a suggested definition for each of a selected list of terms in common use by farm management workers. This report is largely a summary of the reactions of a considerable

number of farm management workers during the last three years to a selected list of terms and definitions assembled by the Committee from a survey of farm management literature.

The report is divided into two parts. In the first part a suggested brief definition is given for over 60 farm management terms, together with brief supplementary notes for a few of the terms. The second part consists of a suggested outline for a farm financial statement. The financial statement indicates, perhaps more clearly than the definitions, the concepts conveyed by the terms used in farm accounting. Furthermore, the suggested outline for a farm financial statement illustrates the possibility of presenting farm accounting information in a form which furnishes a basis for computing the various measures of efficiency and financial success in the operation of farms. The itemization suggested would permit considerable flexibility in recombining items to obtain additional measures.

Your committee recognizes the keen interest of many farm management workers in its work and takes this opportunity to express its appreciation for their splendid cooperation. One of the principal functions of the committee as we have conceived them was to stimulate thought and summarize opinions. We, therefore, recommend that the committee be authorized to compile its preliminary report and supply farm management workers with copies of this report for further suggestions before it is submitted to the Association for publication not later than November 1940.

Respectfully submitted,
(signed) H. M. DIXON, *Chairman*

Report accepted as read.

Report of the Marketing Research Committee

At the business session last year the Association instructed the Marketing Research Committee to finish and prepare for publication the research outlines which had been discussed in round tables during the preceding three years. At present the committee has preliminary drafts of all the outlines. These deal with research on market prorates, tobacco marketing, hog marketing, and the marketing of fruits and vegetables in the northeast.

However, the committee does not feel that these outlines, in their present form, should be published as a report of the work which has been done. While they do represent the material which the committee has used, and while they have served a valuable purpose as the basis for round table discussions, they are not of a character to be generally useful if published in their present form for distribution among marketing specialists.

As an alternative procedure the committee would like to have an opportunity to explore the possibility of incorporating appropriate parts of this material into a single unified report suitable for publication and general distribution.

Unless the Association instructs the committee to the contrary, it will proceed as indicated in the paragraph above.

Respectfully submitted,
(signed) F. V. WAUGH, *Chairman*

Report accepted as read.

Report of the Committee on Professional Farm Management

The purpose of the Committee on Professional Farm Management, which was appointed as the result of action taken at the Detroit meeting in December, 1938, is "to work with a similar committee of the American Society of Farm Managers and Rural Appraisers to bring about closer cooperation between the two organizations."

For this purpose the committee contacted the committee on cooperation with other organizations of the American Society of Farm Managers and Rural Appraisers. Owing to the lateness of the appointment of the committee no specific action was taken other than further consideration of cooperation along such line as those suggested in the committee report of the previous year.

We recommend the appointment of a similar committee for 1940 with the following instructions:

(a) To work with the Committee of the American Society of Farm Managers and Rural Appraisers in planning, if it seems desirable, a round table or other portion of the program of the 1940 meeting of the American Farm Economic Association that will be of particular interest to members of the American Society of Farm Managers and Rural Appraisers.

(b) To continue working with the committee of the other organization in other matters of mutual interest.

Respectfully submitted,
(signed) LYNN ROBERTSON, *Chairman*

Report accepted as read.

Hotel Management: The American Farm Economic Association desires to express its appreciation to the management of the Hotel Adelphia for the facilities provided for these meetings and for the courteous manner exhibited in behalf of the Association.

Committee on Local Arrangements: The American Farm Economic Association expresses its sincere appreciation to Mr. C. U. Jett and the members of his Committee—F. F. Lininger, Kenneth Hood,

Henry Keller, and Leonard Salter—for the very capable manner in which they have handled the local arrangements and for the effective way in which they have contributed to the success of the meetings.

Place of 1940 Meeting: It is the preference of the members present, that the Association hold its 1940 Annual Meeting in New Orleans; final decision to rest with the executive committee.

The members of the Association hereby express their appreciation of the successful efforts of President Elliott in arranging a most interesting and valuable program for the Association.

Executive Committee Action

Meeting of December 27, 1939

The Secretary-Treasurer is authorized to delegate to a representative of the social science organizations the authority for signing a contract, on behalf of this Association, with hotels, convention bureaus, or other responsible agencies, with respect to arrangements for holding annual meetings in designated cities.

The American Farm Economic Association will contribute its prorata share of the travel and subsistence expenses of a representative of the social science groups involved in making arrangements for holding annual meetings.

The committee expressed a preference for holding the 1940 Annual Meeting in Chicago.

The committee expressed a preference for holding the 1941 Annual Meeting in Washington.

The committee voted to contribute not to exceed \$30.00 towards the maintenance of a joint press service during the 1939 annual meeting.

The Secretary-Treasurer was requested to continue the practice of soliciting from members suggested names to be considered by the nominating committee in selecting candidates for officers of the Association.

The committee recommends that the officers of the Association continue to follow the practice of refraining to take a position in the name of the Association on policy matters, unless specifically authorized by the Executive Committee.

The Executive Committee received the report of the Committee on Agricultural Census, and instructed the Secretary to place a copy in the hands of W. F. Callander, Chairman, of the Committee on the Agricultural Census of the Department of Agriculture; and to send a copy to Z. R. Pettet, Chief Statistician for Agriculture, of the Census Bureau.

Meeting of December 29, 1939

The Committee instructed the Secretary-Treasurer, to make an early survey of the possibilities of securing adequate accommodations, and of securing the customary financial support for holding the 1940 meetings in New Orleans; and to report his findings to the members of the Executive Committee.

T. W. Schultz was appointed editor of the JOURNAL OF FARM ECONOMICS for the year 1940.

In order to furnish transfer officers of corporations with the necessary evidence that the Secretary-Treasurer is authorized to transfer securities in the name of the Association, the following resolution is adopted.

"RESOLVED, that the Secretary-Treasurer who is also Chairman of the Investment Policy Committee, be and is hereby authorized and empowered, for, and in the name and on behalf of this Association to take any and all such steps, and to do any and all such things, as may be necessary, required and appropriate for, or in connection with, the purchase, acquisition, acceptance, handling, pledging, sale, or other disposition of stocks, bonds and other securities belonging to the Association or pertaining to its business, including the execution and delivery for and in the name and on behalf of the Association, of any and all endorsements, transfers and assignments of certificates of stock, bonds or other securities standing in the name of this Association, either for the purpose of sale or transfer, and all such other steps and action as may be necessary or proper in connection therewith."

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- European Conference on Rural Life, 1939.* Rome. 1939. 370 pp. Includes a discussion of the following subjects as related to European conditions: Population and agriculture, land tenure systems, capital and income of farms, land reclamation and improvement, condition and improvement of crop production, livestock raising and rural industries, and of government action concerned with agricultural markets and production.
- International Institute of Agriculture. *The World Agricultural Situation in 1936-37 and 1937-38.* Rome. 1939. 275 pp. 25 Lire. A review of the agricultural situation in principal countries prepared under the direction of Dr. George Pavlovsky. Subjects included are: Agricultural production, the general economic background, international economic relations, world trade in agricultural products, prices, incomes, and agricultural policies. A handy reference for developments in more than 20 countries.
- International Institute of Agriculture. *The World Wheat Situation in 1938-39.* Rome. 1939. 96 pp. 20 Lire.
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Use Them. Studies in Business Administration, School of Business, University of Chicago. Chicago. University of Chicago Press. 1939. 90 pp. \$1.00.

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E. G. McKibben, J. A. Hopkins and R. A. Griffin. *Changes in Farm Power and Equipment—Field Implements.* Philadelphia. U. S. WPA, National Research Project. 1939. 111+xvi.

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REVIEWS

Agriculture in Modern Life, by O. E. Baker, Ralph Borsodi, and M. L. Wilson. New York. Harper & Brothers, 1939, 303 pp. \$3.50.

While there are three authors of this book, and while each has made a very distinctive contribution in the way of subject matter and point of view, it is also true that the work is outstandingly Dr. Baker's. Part II, by Mr. Borsodi is hardly more than a magazine article in compass, while Mr. Wilson contributes less than twenty per cent to the volume, so far as bulk is concerned. It is not usual to judge writings primarily by length, nor is that measure presented here as of primary importance. However, the reader will be struck by the fact that Dr. Baker undertakes a much more inclusive, analytical, and scientific account of farmer character, attainments, and prospects than do the others. All three authors speak much in the first person, and express personal beliefs with rather unusual frequency. Not that anyone objects to the expression of opinions, but many of these opinions lack the necessary foundation of substantial probability.

Dr. Baker's section of the book is far from cheerful. His primary fear is that the race may not be perpetuated (on page 5 he uses race synonymously with nation). Closely associated with the perpetuation of the race comes the second basic assumption, viz., that widespread private ownership of land for farms, and village homes, is required in the interest of freedom, democracy, and scientific progress.

In the development of his thesis Dr. Baker uses a wealth of citations to works of merit, many tables of facts, and graphs which serve to clarify his meanings. "It is natural for man to own property, particularly the means of a livelihood for himself and family." Yes, but the main argument regarding the private ownership of land is probably not that it is natural. Neither is it clear that we do, or should, view as socialistic the elementary and secondary schools, universities, and the post office.

That the forests of the eastern states were cleared under the "familistic" system, may be true, but it is not so certain that the people involved were at all, as implied, familistic. They were undoubtedly living an untrammelled life, but not building up families, as the expression is usually understood. The families were large, but

they scattered to the four winds. There was no *maison*, no patrimony; no sheltering homestead to which the less well-to-do might look for support. The closeness of the family ties, very real under many circumstances, was largely a result of the difficulties of getting into lines of work that would take members of the family far from the place of birth.

Dr. Baker's ideal, or hope, seems to be the small farm, and the part-time farm. If the world continues to wage wars of aggression, and to ward off trade among nations, it is altogether likely that, like the Chinese, we will cling close to the land, and small farms will become the order of the day. The prospect of life does not, under these conditions, seem too alluring. "But," says the author, "if the rural people accept the urban philosophy of life, the rural people will also die out, and the hope of building a permanent civilization will perish." (p. 38) It has not been shown that the urban people will die out, neither that the rural people, even with a much lower birth rate, will be in danger of doing so. The urban people do fail to reproduce their full quota of numbers at present, true enough, but the nation does not show convincing signs of moving toward greatly diminished numbers.

One of the serious, and ominous, aspects of country life is farm tenancy. Dr. Baker sees the difficulty of the small farm and the acquisition of the necessary number of farms by the on-coming generation. Certainly if we promote the increase of small farms, and if smaller farms mean larger families, and again, if the urban groups cannot properly absorb a constant stream of country-bred youth, there is only one alternative—an indefinite growth in the number of so-called subsistence farms, which means more hand work in growing diversified crops; a return to home spinning and weaving, and more of a thousand other undertakings which we were, a generation or two ago, glad to get away from. Even the Amish might, should we all come to about the same program, find difficulty in furnishing farms as gifts to each new farmer. It might, and might not be a great blessing to the farm youth of the nation to be started in life, presumably with an equipped farm, (page 170) free from debt. A student of English literature on reading Thoreau for the first time remarked, after finishing *Walden Pond*, "I have learned a great truth: if a man will live like a woodchuck it won't cost much."

Dr. Baker suggests that were this, the gift of a farm to the young

farmer, possible "the farmers of the Corn Belt and the southern counties of the Great Lakes states, in some of the best counties of the East and South and West, within two or three generations might reach a level of culture and comfort such as the world has never known." But suppose they were over impressed by the comfort afforded? Or suppose that this head start for the most favorably situated should result in their undertaking to buy out their less energetic neighbors, and those on less productive farms?

It would be difficult to review, fully, Dr. Baker's portion of the book without writing a document as long, or longer, than the treatise under consideration. It is full of genuine and valuable suggestions, of challenging statements and assumptions many of which, however, cannot be accepted as finished doctrine. Probably this is as high praise as the author could want. The contribution will provoke much far-flung discussion.

The brief discussion by Mr. Borsodi shows that he goes still farther than Dr. Baker toward the advocacy of the small self-sufficing farm; that he is a single taxer. In a kindly, effective way, Mr. Wilson has deflated Mr. Borsodi's economics. Mr. Borsodi agrees with Adam Smith that the government should be limited mainly to the police powers, obviously literal police functions. On the other hand, he does not follow Adam Smith's faith in division of labor as a means of contributing to man's welfare, as is shown in the sentence: "I think it is the truth that the farmer is better off if he first produces everything that he can consume at home."—This would indeed be a long list.

The last of the three authors is the one most cheerful, and hopeful. His brief discussion is in the nature of an essay. It is not heavily documented; contains few figures; is not dogmatic. No one could doubt Mr. Wilson's intimate knowledge of agriculture, either geographically widespread, or reaching back through many years of earlier development.

Mr. Wilson, like Dr. Baker, has faith in self-sufficing farms, but with an important limitation. Says he: "In the first place we cannot escape the need of farmers for a cash income, generally a cash income greater than they now have. They cannot secure a decent share of the material comforts of modern life without some commercial farming." He also observes that in many parts of the country self-sufficiency is not feasible.

Most of us may have hard work to visualize "the developing

science of man," and distinguish it from the many sciences relating to man.

Likewise, we doubt that the long time tenant contract, as such, holds much in the way of the curative, or that tenant-purchasers can avoid making a farm purchase "a speculative venture."

We do, however, agree that "the triumph of scientific agriculture and commercial farming, and the development of the businessman type of farm culture in this age was in a large measure accomplished by the long educational campaign carried on by farm journals, farm organizations, the Extension Service, agricultural colleges and experiment stations, and the like. It does not seem unreasonable to suppose that these agencies should be as successful in educating for twentieth century needs."

B. H. HIBBARD

University of Wisconsin

Factories in the Field, the Story of Migratory Farm Labor in California, Carey McWilliams, Boston, Little Brown and Company, 1939, pp. 334, \$2.50.

Literature has discovered the farm migrants. Steinbeck's novel, *The Grapes of Wrath*, sells as rapidly as *Gone With The Wind*. Steinbeck is the Harriet Beecher Stowe for the California migrants. His book, like *Uncle Tom's Cabin*, is fiction based somewhat on observation. Through its great popularity it exerts a sizable political pressure. Dorothea Lange with her candid camera, and her husband Paul Taylor, with his scrutinizing economic and sociological research, have done their share toward widening the knowledge of the problem of migratory farm labor in various parts of the country.

The book by McWilliams, with its catchy title, adds another volume to the rapidly swelling literature on migratory labor. The author says: "It is intended as a guide to the social history of California, an attempt to dispel a few of the illusions and to focus attention on certain unpleasant realities." He further states, "To understand why the valleys are made up of large feudal empires; to know why it is that farming has been replaced by industrialized agriculture, the farm by the factory . . . , it is necessary to know something of the social history of California . . . in many respects a melodramatic history, a story of theft, fraud, violence, and exploitation."

Since this book is not admittedly fiction, the author can hardly

claim the same freedom in dealing with his subject as the novelist Steinbeck. From a former lawyer in southern California and California's present Commissioner of Immigration and Housing, we might expect a well-documented, unbiased analysis of the migratory labor situation as it presents itself to a statesman and trustee of California's commonwealth. Most unfortunately the author bitterly disappoints any reader who entertains such expectations.

What we find is a most amazingly lopsided, highly emotional story of what, in the author's opinion, was and is responsible for conditions in California agriculture. Instead of finding specific facts and data which lead to conclusions, the reader meets with an endless chain of accusations mostly documented by footnotes relating to books of fiction or the theses of social reformers. Statistics on the most pertinent and weighty facts about the distribution of land or the many other disputed items of California agriculture appear to be avoided with the greatest care. The reader gets the impression that the corporations run California's farms. Not a word is said about the 100,000 full owners, the 11,000 part owners, and the 33,000 tenants; or about the statistical fact that only 4.5 per cent of the farms and 16 per cent of the acreage is operated by managers.

The author's scanty appeals to numbers, moreover, display a remarkable contempt for accuracy. It is stated, for example, (p. 266) that "a subsidiary of the Bank of America at one time during the depression owned or controlled 50 per cent of the farm lands of Northern and Central California." The true facts are that the subsidiary in question held and operated in 1935 a peak of 531,000 acres of foreclosed agricultural land, or 1.7 per cent of the 30 million acres of farm land in California. Even if southern California were excluded, the proportion would not be noticeably larger.

These questionable methods of presenting a passionate argument however, might not count so heavily if the conclusions were more convincing. Aside from a narrative about the exploitation of various racial groups and about strikes and riots, the central arguments may be condensed into several theses:

Thesis 1.—*California agriculture today is dominated by monopolistic corporations which lie at the root of all social evils. The shipper-packer producers, or the owners of the "factories in the field," block the emergence of a sound agrarian situation.*

Mr. McWilliams would have us believe that this maldistribution

of land is the result of feudal Mexican land grants "most of which were fraudulent," and of land grants to the railroads. Such an explanation of the present distribution of land is nothing more than an assumption taken mostly from Henry George, the single-tax land reformer. Why did it not occur to the author to ask himself why similar land grants to railroads and to speculative land companies in the Middle West did not lead to concentration of farm holdings but, on the contrary, were in fact a bridge to a solidified family-farming system?

Is there any reason why the corporation should not sell out at profitable prices to family farmers if these are in fact the more successful operators? Buying land wholesale and retailing it at a good profit has always been most attractive to "land buccaneers"!

Apparently it did not occur to the author to consider the peculiar economics of irrigated farming of special crops. The fact is that the irrigated "factories in the field" are a most capital-intensive gamble, and family farmers cannot and should not try to compete with them. The assertion that corporations growing lettuce or fruit, control prices of their products is pure fiction.

Thesis 2.—*The grantees, who obtained their titles fraudulently, received the most fertile land in the world.*

The truth is that practically all of the land was arid land when they received it. Costs of irrigation range all the way from a few dollars to \$80 per acre a year. Nowhere is the productivity of land more man-made than in California.

Thesis 3.—*Nor were the great estates ever taxed: forty ranchos in San Diego, including over 600,000 acres of land, were taxed for years at 75 cents an acre.*

What this means depends entirely on the productivity of the land. If it is the poorest range land, then such taxation may be perfectly adequate. If it is desert, 75 cents may force the owner to abandon it. Tax-delinquent land now in the hands of state and counties is a real problem, and speaks more of overtaxation than of tax privileges. Ch. ^{II} Abrams' *Revolution in Land* is a useful comment in point.

Thesis 4.—*The corporations exist through exploitation of cheap labor, of which they maliciously secure a permanent oversupply by luring under false pretenses tens of thousands of people to California, only to employ them for a short season and then throw them out.*

This is the author's explanation for conditions admittedly most unsatisfactory, under which the families of these laborers live in many camps. If this were the only cause it would be simple enough to cure once and for all by prohibiting the attracting of such labor. What has, in fact, brought the migratory laborers into their present plight is a much more involved process. While the specialization of Californian farming has created a demand for mobile seasonal laborers, by small and large scale farms alike, the flood of migrants that has come in recent years has not been lured there by hand-bills. A major disaster of recurrent drought in the semiarid wheat districts of the Great Plains has forced them out; so has mechanization of agriculture in their former homes; the motives of the majority of the migrants who are of good American stock were exactly those of the early settlers in quest of better land, and to some, relatively advanced social legislation in California has made the State look all the more what it always tended to look like—the pot of gold at the end of the rainbow.

The space allotted for a review does not permit setting the facts right that are ascertainable beyond differences of opinion. Hence it is futile also to point out how absurd is the author's attempt to explain the basic problem of the migrants by a doctrine of class hatred. It should be mentioned, however, that he decries the failure of the communists to organize the laborers, and he brands the 40,000 Associated Farmers without hesitation as "brownshirted fascists." His book ends with the suggestion that "the real solution involves the substitution of collective agriculture for the present monopolistically owned and controlled system. . . . As a first step in the direction of collectivization . . . agricultural workers must be organized." Then they will solve their problems themselves. It "involves merely a change in ownership." (Pp. 324-325.)

The author is obviously convinced that political pressure fed by hatred is the only road toward adjustment of the temporary discomfort and suffering of social groups. It seems that by too much zeal he does a disservice to the good cause of his clients. There is no reason why the migratory farm labor problem should not be solved by administrative measures based on coolheaded legislation. It certainly does not require a utopian revolution.

KARL BRANDT

Stanford University

Farming Hazards in the Drought Area, by R. S. Kifer and H. L. Stewart, Washington, D. C.; Works Progress Administration, Division of Social Research, Research Monograph XVI, 1938. Pp. xxviii+219.

This monograph is a statistical exposition of the factors which contribute to the hazardous nature of farming in the Great Plains. All persons interested in farm management work in the Great Plains, and especially the group of persons interested in rehabilitating farmers in this area can read the monograph with profit. The authors have emphasized the factors which should be considered in rehabilitating farmers.

The study is based upon data assembled in 13 representative counties distributed throughout the drought area. The area is divided logically into the Northern Great Plains, the Central Great Plains and the Southern Great Plains regions for analytical purposes. The history, development, geography, and economic status of each region are described. Recommendations for a rehabilitation program are made. The authors state, "In almost all of the areas studied permanent rehabilitation of farmers would involve an increase in the size of some of the farms, retirement of some land from crops, an increase in pasture acreage, immediate or eventual replacement of depleted livestock herds, repairs to buildings, and repairs or replacement of machinery."

The importance of physical conditions in the Great Plains area is stressed. Extremes in climatic conditions are shown by assembling climatological data from various weather stations in the area. That years of low rainfall occur frequently in certain portions of the area is clearly indicated. The study also indicates that the primary reason for distress usually is an accumulation of effects caused by a series of sub-normal years. A majority of the farmers can endure failure for one year, but are unable to survive a series of poor crops.

The problems of tenancy, non-resident ownership of land, debt and soil conservation are treated in an excellent manner. There has been tabulated an abundance of statistical data indicating the problems which confront the agencies attempting to rehabilitate the farmers in this area. Generally, the farm management problems have been stated clearly and, with a few exceptions, recommendations regarding them appear to be logical.

The authors overemphasize the importance of the relationship between size of business and success of the farmer. More emphasis

should be given to the fact that in many instances management itself is the limiting factor. Perhaps many of these farmers are not capable of operating a business of sufficient size to be successful in this area. A size of farm business is advocated which will enable the farmer to produce a surplus in good years sufficient to carry him through years of poor crops. This evidently is the best solution of the farmer's problem in the Great Plains region. Following this type of program requires good production practices combined with much foresight, and willingness and ability to save for years of poor crops. These qualities are found only in the exceptional manager. Length of residence was shown to be an important factor in relation to financial progress. Data assembled show that a large percentage of farmers who have suffered financial losses have been operating ten years or less in the area. The authors' contention that "had these farmers been in the area for a longer time, it is possible that some of those operating large farms might have been able to make some financial progress," may be correct. It also is possible to contend that the severe conditions occurring in this area made possible financial progress only by farmers with a higher than average degree of managerial ability.

The decrease in livestock inventories throughout a major portion of the area is stressed. The importance of replacing livestock numbers if good farm organization principles are to be followed is emphasized. The authors should be commended for advocating a diversified type of agriculture for this region. The recommended plan would include feed crops, summer fallow, and livestock in addition to cash-grain crops. This type of plan is essential if a permanent farming business is to be established in the area. The major criticism of the publication is that the reader acquires the impression that the plight of the farmer in these regions come from physical, economic, or political factors. The personal factors are almost obliterated.

R. J. DOLL

Kansas State College

Changes in Technology and Labor Requirements in Crop Production: Corn, by Loring K. Macy, Lloyd E. Arnold, and Eugene G. McKibben. Philadelphia, Works Progress Administration, National Research Project, Report No. A-5, 1938, XVIII, 181 pages.¹

¹ This monograph was reviewed in the *JOUR. FARM ECON.*, November 1938 pp. 893-4.

Changes in Technology and Labor Requirements in Crop Production: Cotton, by William C. Holley, and Lloyd E. Arnold. Philadelphia Works Progress Administration, National Research Project, Report No. A-7, 1938, XVI, 132 pages.

Changes in Technology and Labor Requirements in Crop Production: Wheat and Oats, by Robert B. Elwood, Lloyd E. Arnold, D. Clarence Schmutz, and Eugene G. McKibben. Philadelphia, Works Progress Administration, National Research Project, Report A-10, 1939, XV, 182 pages.

The purpose of these monographs is to determine the trends in the amounts of labor used in producing corn, cotton, wheat, and oats for the period 1909 to 1936. The main interest here, as in the other monographs of the National Research Project, is in the volume of employment and the degree to which technological changes in production have added to the problem of unemployment.

The method of study is similar for all three monographs. The technological changes that are considered are divided into two broad groups: those that have their influence upon the yield of a crop, and those that change the amount of labor needed to grow and harvest a crop. Under the first group appear the influences of new varieties, crop rotations, fertilizers, and methods to control insect and disease damages. The amount of labor required per acre is determined largely by the number, type, and combination of crop operations, by the characteristics of soil and topography, and by the type and size of equipment and power used to perform the crop operations. The labor requirement per acre, of course, is not independent of yields, particularly in the harvesting operations.

The authors conclude that the major result of the agronomic developments has been generally to maintain average yields despite the ravages of disease and insects and the depletions of soil fertility in the older regions. Although the average yield of cotton fell in the decade following 1915 as a result of the boll weevil, earlier maturing varieties of cotton and more efficient techniques of control have reduced the boll weevil damage materially in recent years. Hybrid corn had little part in increasing yields, for the adoption of hybrid corn has come almost entirely since 1936.

Changes in the crop operations and labor requirements were determined for the most part from the results of surveys conducted by the National Research Project in 1936. The farms surveyed were

selected at random by counties, with the exceptions that farms under 50 acres were excluded, and older farmers were chosen in preference to those of shorter farming experience in order to obtain information of the farming methods current in the first part of the period under study. The authors think that the probable downward bias in labor requirements per acre caused by selecting the larger farms with larger equipment, was offset largely by their method of calculating the average labor requirement per acre and by the conservative estimates of the large porportion of older farmers who might not be up-to-date in their methods. All data were based on the memory of the farmers.

From the data of the survey and from other sources, the authors arrive at the labor requirements per acre for the various areas of production and for the United States in the periods approximate to 1909, 1919, 1929, and 1936. The average number of hours of labor required in the United States to grow and harvest an acre of corn fell from 28.7 in the period 1909-13 to 22.5 in 1932-36, while the acre labor requirement for cotton fell from an average of 105 hours in 1907-11 to 88 hours for the period of 1933-36. Wheat required an average of 12.7 hours per acre in 1909-13, but only 6.1 hours in 1934-36, while at the same time the hours of labor needed for oats dropped from an average of 12.5 to 7.9.

Changes in the areas varied, of course, and the shift of the production of wheat and cotton to areas now largely mechanized and having low labor requirements per acre, accounts in part for the fall in the average amount of labor required to produce an acre of these crops in the United States. In general the Corn Belt area and the more arid regions have the lowest labor requirements per acre. However, the low yields per acre in the more arid regions partly offset the advantage of a low labor requirement per acre by making the labor requirement per bushel higher than it would be otherwise.

The authors arrive at estimates of the total number of man-hours needed to produce these crops. They estimate that the production of corn required 622 million less man-hours in the 1936 period than in the period approximate to 1909, while cotton, wheat, and oats require 854, 241, and 142 million less man-hours. Mechanization is expected to lower the total labor requirement still farther, the prospect for cotton holding the greatest potentialities of future displacement as it has a very high labor requirement per acre and is least mechanized at present. However, there are strong

barriers to mechanization in large areas of cotton production.

It is the opinion of the reviewer that these particular studies suffer from a lack of interpretation. What does a reduction of 622 million man-hours in the production of corn mean in relation to the labor displaced over the same period and to the number employed in agriculture at the present time? It may not have been the aim of the authors to make this additional analysis. Nevertheless, this lack of a more complete analysis places these monographs into the category of partially analyzed material, basic for additional research.

For those who wish information of the kind and importance of the crop operations in the various areas, and of the principal agronomic developments for these crops, these monographs should be valuable. An unusual feature has been the depositing of the summarizations of the surveys in the Library of the Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D. C. The authors indicate the nature of this material in the appendixes.

ALBERT A. THORNBROUGH

*U. S. Department of Agriculture
Bureau of Agricultural Economics*

Migratory Cotton Pickers in Arizona, by Malcolm Brown and Orin Cassmore, Urban Surveys Section, Works Progress Administration, Division of Research, Washington, D. C., 1939. Pp. xxii+104.

Hired Labor Requirements on Arizona Irrigated Farms, by E. D. Tetreau, Arizona Bulletin No. 160, 1938, Pp. 31.

Arizona's Farm Laborers, by E. D. Tetreau, Arizona Bulletin No. 163, 1939. Pp. 40.

Migratory Cotton Pickers in Arizona is a study which follows up the recent report on public assistance for farm migrants made by the Works Progress Administration at the request of the President. Its purpose is to answer some of the numerous questions that have arisen from the troublesome social and economic conditions associated with western migration. Briefly, some of the most acute of these may be listed as follows:

1. Is a large supply of non-resident labor essential to the present scheme of agriculture in the Southwest (New Mexico, Arizona, and California)?

2. What are the facts concerning the income and living conditions of the western migratory workers?
3. Have western growers encouraged the workers to make the long trek westward or have economic conditions at home produced the exodus?
4. What is to be the role of the Federal government in the present and potential maladjustments developing out of the situation?

The necessity of having a large supply of seasonal laborers to harvest the ever-increasing Arizona cotton crop is established beyond a doubt. The State is sparsely populated and a combination of low wages and lack of occupational mobility on the part of industrial workers eliminates the possibility of a full utilization even of the limited resident labor reserve. The second question is disposed of by an examination of the actual incomes and living conditions of the 518 migrant families included in the sample. With an average family cash income from all jobs held in 1937 of only \$393, "the great majority of the cotton pickers finished the year either actually in need of relief or in immediate danger of becoming so." Housing conditions were found, in many cases, to be "unspeakably wretched," and the health hazards serious; while the attitude of residents toward mingling socially with these nomadic people was one of resentment at their presence in the community.

Brown and Cassmore place the responsibility for the influx of migrants to Arizona largely upon the cotton producers. "Advertising directly accounted for 42 per cent of all Texas migrants and 29 per cent of all Oklahoma migrants. The rumor of good work and wages attracted one-fifth of the migrants; many of these workers had doubtless responded second or third hand to the advertising campaign."

The authors recommend that in attempting a solution the theater of operations should logically center about those sections of the Western Cotton States which have been hardest hit by tenant displacement. While this admittedly slow process develops, the authors suggest that a curb be placed on "the present unrestricted recruiting of seasonal labor" by growers in Arizona and other Southwestern states. Government agencies such as the Arizona State Employment Service, they add, should cease lending their name to this uncontrollable, and often misleading, advertising. A final conclusion is that public relief should be made available to the mi-

grants, stating that "a public responsibility exists to tide these essential workers over the periods when, through no fault of their own, they temporarily lack the necessities of life."

Faced with the prospect of affirming or denying charges made by Steinbeck and later, McWilliams, that western growers had been guilty of deliberately recruiting an excessive labor force for purposes of exploitation, the bulletin emerges with an undeniably strong case against at least some of the Arizona farm operators. The chapter on labor recruiting, containing as it does the "first documentation of the advertising materials used," is the most interesting section of the bulletin. As a whole, the subject matter is handled in a lucid, convincing style.

Dr. Tetreau's Experiment Station Bulletins were designed to furnish basic data relating to the hired labor requirements on Arizona's irrigated farms, together with an analysis of the adequacy of the resident labor supply, and are of primary value to Arizona's public agencies and the farm operators themselves. The 1939 edition of this study reveals that the resident labor reservoir provides a sufficient number of farm workers from January through August, but that some additional workers are required from September through December to pick cotton. Laborers who had come in to Arizona from other states were found to be "willing and capable workers." The majority of them, both natives and newcomers, lived in clustered dwellings within easy access to the fields.

Tetreau's survey had a somewhat different set of objectives in view than that of the WPA, but at points where they touch, there seems to be no conflict in their findings. His reports are scholarly and indicative of painstaking research.

JOE R. MOTHERAL

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Basic Factors and Trends of Development in Agricultural Production of the Netherlands East Indies—Grundlagen und Entwicklungsrichtung der landwirtschaftlichen Erzeugung in Niederländisch-Indien. W. K. G. Gretzer. "Berichte über Landwirtschaft." Neue Folge, 146. Sonderheft. Berlin. Paul Parey, 1939, 180, 18.40. R.M.

The author, in his book which is published in the well known series, "Berichte ueber Landwirtschaft," presents a survey of the history and the present economy of the Netherland colony. The

first part—with an introductory chapter on morphology and geology, climate and vegetation with special regard to their economic consequences—describes the exploitation of the territory that was started by the Portuguese and carried on by the powerful merchants of Amsterdam. Later the islands were involved in the European war aims of the 19th century and finally, due to the systematical and well organized colonial policy of the Dutch, became one of the richest and highest developed tropical colonies.

An analysis of the present economic and social structure of the East Indies forms the main subject of the book. The author emphasizes the special features of the population; the 61 millions of people are composed of 97% of natives, 2% of Chinese, 0.4 of Europeans and 0.2 of foreign Asiatics. These are unevenly distributed over the different areas. The island of Java although exclusively rural has 42 millions inhabitants and represents one of the most densely populated areas of the world—with about 800 inhabitants per square mile. These natives occupy about 60% of the total area and produce all the foodstuff that they use by a system of land cultivations in small farming units with much labor but little capital investment; rice is the main product. The Javanese do not constitute social and political problems to the motherland as they are extremely loyal, industrious and modest. In addition there are the large agricultural enterprises in European hands with high capital investment, principally devoted to the production of raw materials for export. The main product is rubber with 40% of the world export in 1928, while sugar, tea, coffee, copra and oil fruit are also important. The colony's share in world export of palm oil increased from 12.8% in 1928 to 34.8% in 1935. The Indies supply the main part of the world export in pepper and cinchona with 70–90%. The successful operation of these farms has always depended to a large extent upon labor supply which for decades has been difficult to procure. The Netherlands, in common with other countries, has experience in this dark chapter of colonial history with more or less compulsory labor and restriction of free contracts which especially hit the Chinese coolie. In recent years there are some interesting social endeavors to overcome these problems by colonization and part-time labor.

The crisis of the world market in 1929 struck the East Indies exporting farms most heavily. The export figures show a decline from 1928 to 1935 of 35%, but restrictions on production and in-

ternational agreements as to rubber and sugar output have successfully overcome the depressing conditions which resulted. The Dutch Government also took initiative in economic policy by imposing taxes on imports into the Indies, thus taking part in the current trend towards protectionism.

It is the special merit of the publication that in addition to production and export data, it gives some sociological background of the development in the Far East Colony. It may be mentioned in passing that the author contends that the world crisis is attributable to the treaty of Versailles. This opinion, however, cannot be sustained. This point of view suggests to the reviewer that the writer has encountered difficulties common to many Germans in being objective in discussing these issues which among scholars acquainted with facts should not provoke emotional bias.

K. MENGELBERG

MAX SERING

In the passing of Dr. Sering, Germany loses a distinguished son; America loses a valued friend; the agricultural economists of the world lose a leader and colleague who cannot be replaced.

Dr. Sering made his first visit to America in 1883 while engaged in a study of agricultural competition. Not only did he impress his newly made acquaintances with his brilliant scholarship, but also delighted them with his enthusiastic interest in the country, its agriculture, its scenery and even its sports. While visiting several of the agricultural colleges and experiment stations he made a stay of some days at the Iowa State College, and was a house guest at the home of the president of the College. He recalled with delight, when last in America, his brief stay in a pioneer Wisconsin settlement, where incidentally, nearly half a century earlier, he took part in a hunting trip. Making his way to the West for a sight of the wheat fields and cattle ranches, he visited Yellowstone Park, travelling some distance by stage.

Dr. Sering's life, while serious and busy, was enlivened by artistic accomplishments, and was characterized by genuine human qualities. In his younger years he played the 'cello, on which he developed much skill. In all his many interests and activities, and cares, devotion to his family came first.

As he came to mature years his greatest concern was for peaceful and friendly relations among nations. We can still hear him say: "Science knows no international boundaries; there are no tariffs on ideas or friendships. We must learn to live together as neighbors."

The welfare and promotion of the International Association of Agricultural Economists, from its beginning, were always on his mind and heart.

Our sincerest sympathy is expressed, hereby, to his widow, his daughter, and to his three grandsons.

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